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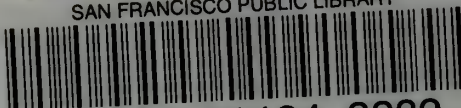
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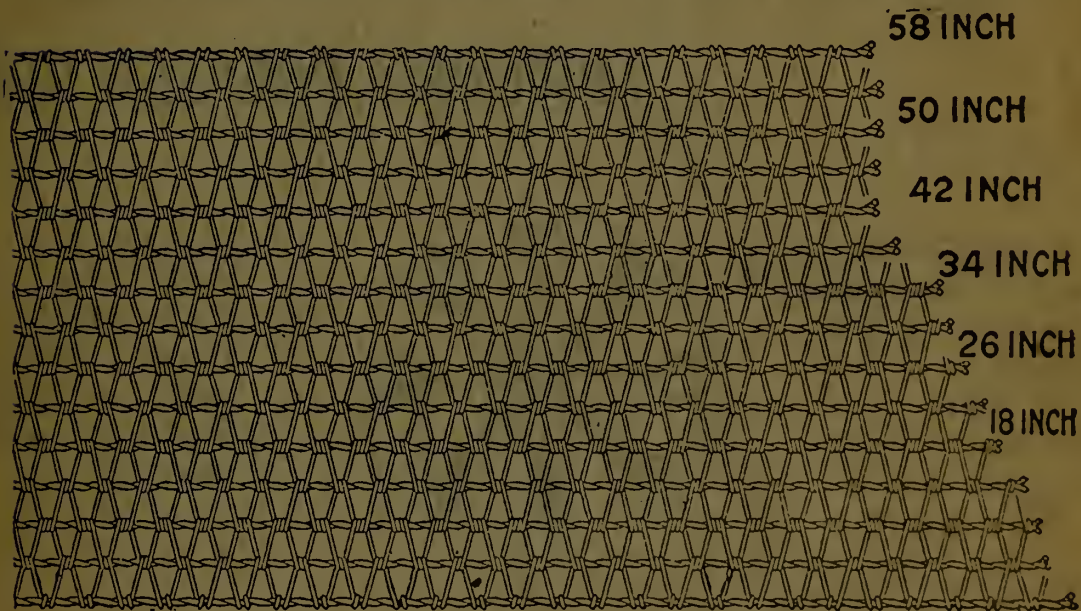
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INDEX TO BUILDING LAW

A

Alteration, Definition of..... 15
 Anchors60, 224, 232
 Apartment Houses18, 311
 Appendages293, 294
 Application for Permit..... 6
 Arches182A-223
 Areas316, 317
 Ashlar Facing83, 182, 216, 217
 Asylums311
 Attics233, 260
 Awnings314

B

Balconies294, 314
 Basement15, 269
 Bases 63
 Bay Windows264, 290, 294
 Beams, Class B.....160
 Class C202
 Bearing Plates 76
 Bearing Wall, Definition of..... 15
 Belts293
 Blocks 79
 Board of Examiners..... 14
 Boilers121
 Bond Iron227
 Boundary Lines 3
 Brackets 77
 Brick26, 94
 Brick Floors 88
 Brick Walls82
 Bridging262
 Buildings, Definition of..... 15
 Buildings, Class A..... 50 to 144
 Class B.....145 to 195
 Class C.....196 to 249
 Frame254 to 265
 Building Permit.....8, 9
 Buildings for Manufacturing..... 4
 Buildings Moved..... 13
 Buildings, Numbering of....345 to 351

C

Cast Iron..... 39
 Cast Steel..... 38
 Ceiling101, 185, 238
 Cellar, Definition of..... 15
 Cement29
 Cement and Lime Mortar..... 31
 Cement Mortar..... 30
 Certificate of Inspection.....324
 Certificate of Registration.....325
 Certificate Revoked.....329
 Check Valve120
 Chimneys270, 278, 280
 Chimneys, Patent274, 276
 Class A Buildings.....41, 54 to 144
 Class B Buildings.....42, 145 to 195
 Class C Buildings.....43, 196 to 249
 Columns, Class A.....77 to 92
 Class B150 to 159, 170

Class C203
 Combined Foundations..... 65
 Compression 66
 Concrete32, 81, 166, 344
 Concrete Blocks..... 79
 Concrete Floors.....86, 90
 Concrete Piles 35
 Concrete, Preparation of..... 58
 Concrete, Reinforced,
 15, 32A, 35, 62, 81, 124, 163, 169, 170, 184
 Concrete Walls..... 81
 Connections 70
 Contractor's Bond.....328
 Cornices110, 246, 293

D

Dead Load, Definition of..... 15
 Definition of Terms..... 15
 Demolition of Buildings..... 10
 Department of Electricity.....327
 Department Stores..... 47
 Division Wall, Definition of..... 15
 Doors, Fireproof.....295
 Dormer Windows.....295
 Drying Rooms.....286
 Dumb Waiters.....301
 Dwellings, Definition of..... 17

E

Eaves294
 Electrical Appliances.....323 to 334
 Elevators111, 122, 247, 269, 301
 Elevator Houses.....105, 188, 242
 Elevator Shafts.....301 to 309
 Engineers' Ladders.....299
 Examination of New Materials.... 14
 Excavation340
 Exhibition Buildings.....251
 Exits312
 Expiration of Permits..... 9
 Exterior Wall, Definition of..... 15
 Extra Inspection.....332

F

Facing83, 178
 Factories265
 Fees12, 333
 Fences339
 Fire Stress 66
 Filing Plans 8
 Fire Appliances123
 Fire Escapes310 to 313
 Fire Units 3
 Fireplaces106, 189, 243, 272
 Fireplaces, Patent275
 Fireproofing92 to 98
 Fireproofing, Class A.....92 to 98
 Class B162A
 Fireproof Roofing Limits..... 5
 Fireproof New Devices..... 14
 Fireproof Room282

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Fireproof Shutters and Doors.....295
 Firewall15, 72
 Flats, Definition of..... 20
 Floors85, 91, 185, 234, 319
 Floorlights109, 297
 Floors, Class A..... 50
 Class B146, 285
 Class C196, 234
 Floors, Brick 88
 Floors, Concrete86, 90
 Floors, Iron 89
 Floors, Temporary319
 Floors, Terra Cotta 87
 Flues106, 189, 243, 270
 Foundation, Class B.....148
 Class C197
 Foundations55, 56, 64, 65, 197
 Foundation Loads 59
 Frame, Class B.....149, 163
 Class C200, 201
 Frame Buildings45, 254 to 267
 Furnaces284
 Furring100, 225, 263

G

Gas Grates and Logs.....279
 General Provisions267
 Girder Straps 76
 Girders, Class B.....160
 (Class C202
 Girders, Definition of..... 15
 Girders, Plate 74
 Grain Elevators250
 Grillage 61
 Gutters110, 246, 293

H

Halls 48
 Hatchways301
 Heating Appliances287, 289
 Height, Definition of..... 16
 Height of Buildings....16, 41 to 48, 255
 Hoists301
 Hose116, 117, 118

Hospitals25, 49, 311
 Hot Air Boxes.....283
 Hot Water Pipes.....287
 Hotels21, 311

I

Inspection324, 330, 331, 356
 Iron 39
 Iron Floors 89

J

Joint Plates152

L

Ladders298, 299
 Lath, Metal 95
 Leaders110, 236, 246
 Length, Definition of..... 16
 Light Shafts104, 241, 296
 Lime Mortar 28
 Lintels182A, 223
 Lintels, Cast Iron..... 75
 Load, Dead, Definition of..... 15
 Live, Definition of..... 15
 Loads, Class A..... 50
 Class B147
 Class C199
 Load on Foundation..... 59
 Loads on Soils..... 55
 Lodging Houses23, 311
 Lumber 33
 Lumber, Table of Strength.....34

M

Masonry, Definition of..... 15
 Materials Confined337
 Measurements of Buildings..... 16
 Metal Lath 95
 Mill Construction4, 44
 Miscellaneous77, 103, 162, 239
 Moldings294
 Mortar28, 30, 31, 84, 217, 344
 Moving Buildings 13

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N

New Devices and Materials.....	14
Non-liability of City.....	11, 334
Numbering of Buildings.....	345 to 351

O

Office Building	22
Open Fireplaces	273
Openings in Walls.....	268

P

Paint, Removal of.....	353
Parapets	294
Partial Permits	9
Partitions	15, 99, 100, 185, 237, 259
Party Wall	15
Passages to Exits.....	311
Penalty for Violation.....	358
Permit	6, 7, 9, 12, 13, 335, 336
Piles	35, 57
Pipes	98
Planing Mills.....	253
Plans, Filing	8, 9
Plate Girders	74
Portland Cement	29
Public Halls	48
Pumps	121

R

Ranges	288
Reconstructing Roofs	5
Registers	285
Reinforced Concrete, 15, 32A, 62, 81, 124, 163, 169, 170, 184	
Reinforced Concrete Piles.....	35
Removal Permits	13
Renewal of Permits.....	9
Repairs Definition of.....	15
Retaining Wall	15, 58
Rivet Steel	37
Rock Concrete	32
Roofs	5, 98, 102, 185, 235
Roofs, Class A.....	50
Class B	185
Class C	235
Frame	265
Roof Trusses	73
Rules and Regulations.....	338

S

Sand	27
Sanitarium	25
Scaffolds	341, 342
Scuttles	298
Seminaries	311
Shades	314
Shear	66
Shutters, Fireproof	295
Sidewalks	50, 339, 315 to 318
Sidewalk Elevators	309, 322
Sidewalk Lights	109, 245
Skylights	108, 191, 244, 291
Smokehouses	252
Smoke Pipes	277
Smokestacks	107, 190, 271
Special Foundations	65

Special Structures	250
Specifications, Filing	8, 9
Spires	294
Stables	320
Staging	300
Stairs	112, 248, 269, 321
Stand Pipes 113, 114, 115, 249, 310, 310A	
Steam Boilers	282, 284
Steam Pipes	287
Steel	37, 38, 167, 168
Steel Columns	67, 68
Steel Frames	15
Steel Frames, Class B.....	149
Steel Frame Stresses.....	66
Stopping Construction	354
Story, Definition of.....	15
Stores	288
Straps	232
Strength of Structural Steel.....	37, 38
Stress, Class B	165
Studding	258, 265
Supports, Temporary	52

T

Tanks	103, 120, 186, 239, 240
Tenement House	19, 311
Tension	66
Terra Cotta	15, 80, 93
Terra Cotta Floors.....	87
Tests	156, 172
Theatres	125 to 144
Thickness of Wall.....	15
Ties	224
Timber Details, Class C.....	231
Ton, Definition of.....	15
Towers	294
Trusses, Roof	73, 228, 229, 230
Turrets	294

U

Unsafe Structures	355
-------------------------	-----

V

Vaults	315
Vents	104, 187
Vent Shafts	296
Ventilators	294

W

Wall Anchors	76
Walls	78
Class B	173 to 183
Class C	204 to 215, 218 to 226
Frame	256 to 259
Walls, Brick	82
Walls, Concrete	81
Walls on Steel.....	71
Warehouse, Definition of.....	24
Water Supplies	119, 120
Weight Distribution	51
Weights of Materials.....	53
Width, Definition of.....	16
Wind Bracing	69, 161
Windows, Bay	264, 294
Windows, Dormer	294
Wind Pressure	171
Wood Frame Buildings.....	254 to 267
workshops	311
Wrought Iron	36

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PART I.

Section 1. This Ordinance shall be known as "The Building Law" of the City and County of San Francisco.

Section 2. This Ordinance shall apply to all buildings hereafter to be erected, constructed, altered, repaired, raised, added to or built upon within the boundaries of the City and County of San Francisco, except buildings and construction for which permits have been issued by the Board of Public Works prior to the passage of this Ordinance.

PART II.

BOUNDARY LINES OF THE AREAS WITHIN WHICH VARIOUS CLASSES OF BUILDINGS MAY BE ERECTED.

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Section 3. That portion of the City and County of San Francisco within the boundary lines in this section hereinafter set forth shall be known as

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The fire limits shall be bounded by a line commencing at the intersection of the shore line of the Bay of San Francisco with the easterly end of the center line of Greenwich street; running thence westerly along the center line of said Greenwich street to its intersection with the center line of Sansome street; thence southerly along the center line of Sansome street to its intersection with the center line of Broadway; thence westerly along the center line of Broadway to the center line of Virginia place; thence southerly along the center line of Virginia place to its intersection with the center line of Pacific street; thence westerly along the center line of Pacific street to the center of the crossing of Pacific and Powell streets; thence southerly along the center line of Powell street to the center of the crossing of Powell and Sacramento streets; thence easterly along the center line of Sacramento street to the center of the crossing of Sacramento and Stockton streets; thence southerly along the center line of Stockton street to a point distant one hundred and thirty-seven and one-half ($137\frac{1}{2}$) feet northerly from the northerly line of Bush street; thence westerly parallel with Bush street on a line distant one hundred and thirty-seven and one-

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and Howard streets; thence in a northerly and easterly direction along the center line of Howard street to the center of the crossing of Howard and First streets; thence in a southerly and easterly direction along the center line of First street to the center of the crossing of First and Folsom streets; thence easterly along the center line of Folsom street to the center line of Steuart street; thence in a northerly and westerly direction along the center line of Steuart street to a point one hundred and eighty-three (183) feet and four (4) inches northerly from the northerly line of Folsom street; thence at right angles easterly through private property to the waters of the bay; thence along the shore line of the waters of the bay in a northerly and westerly direction to the point of commencement.

Mill Construction Limits.

Section 4. Buildings of heavy timber, "mill construction," frames and floors, with exterior walls and roof of corrugated iron fastened to timber frame, and without boarding, not exceeding 45 feet in height, used only for manufacturing purposes other than wood-working, may be erected outside the fire limits and may also be erected within the following described portion of the fire limits.

Commencing at the intersection of Howard street projected with the Bay of San Francisco; thence southwesterly along the center line of Howard street to the center of the intersection of Howard and First streets; thence southeasterly along the center line of First street to the center line of Folsom street; thence northeasterly along the center line of Folsom street to the center line of Steuart street; thence northwesterly along the center line of Steuart street to a point one hundred and eighty-three (183) feet and four (4) inches northerly from the northerly line of Folsom street; thence at right angles easterly through private property to the waters of the bay; thence along the shore line of the waters of the bay in a northerly and westerly direction to the point of commencement.

Fireproof Roofing Limits.

Section 5. The roofs of all buildings hereafter constructed within the limits hereinafter in this section described shall consist of fireproof materials,

and whenever the roof or roofs of any such building or buildings heretofore constructed within the said limits shall, in the judgment of the Board of Public Works, be or become damaged through fire, decay or otherwise, to the extent of forty (40) per centum of the value of said roof or roofs, then said roof or roofs shall be reconstructed or replaced with fireproof materials. Said fireproof materials shall consist of the same materials required for the roof coverings of all buildings erected within the fire limits of the City and County.

Said limits shall be bounded by a line commencing at the intersection of the shore line of the Bay of San Francisco with the northerly end of Van Ness avenue; thence southerly along the center line of Van Ness avenue to Green street; thence westerly along the center line of Green street to Lyon street; thence southerly along the center line of Lyon street to Pacific avenue; thence westerly along the center line of Pacific avenue to its intersection with the southerly line of the Presidio Reservation; thence following the southerly line of the Presidio Reservation to First avenue; thence southerly along the center line of First avenue to California street; thence easterly along the center line of California street to Presidio avenue; thence southerly along the center line of Presidio avenue to Geary street; thence easterly along the center line of Geary street to Broderick street; thence southerly along the center line of Broderick street to Waver street; thence westerly along the center line of Waller street to Buena Vista avenue; thence southerly and easterly along the line of Buena Vista avenue to Duboce avenue; thence easterly along the center line of Duboce avenue to Mission street; thence crossing Mission street to the center line of Thirteenth street; thence southerly and easterly along the center line of Thirteenth street to Harrison street; thence northerly along the center line of Harrison street to Eleventh street; thence southerly and easterly along the center line of Eleventh street to Bryant street; thence southerly along the center line of Bryant street to Division street; thence easterly along the center line of Division street to King street; thence northerly along the center line of King street to Seventh

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street; thence southerly and easterly along the center line of Seventh street to Channel street; thence northerly and easterly along the center line of Channel street to the shore line of the Bay of San Francisco; thence following the shore line of the Bay of San Francisco to the point of commencement.

PART III.

Relating to Issuance of Permits, Filing of Plans, Specifications and Statements, Demolition of Buildings and Examination of New Devices and Materials.

Permits Must Be Obtained from Board of Public Works.

Section 6. No person, company or corporation shall erect a building or structure of any kind, or add to, enlarge or extend any building or structure already erected within this city and county without first obtaining a permit from the Board of Public Works.

Application for Permit.

Section 7. The application for such permit shall state the exact site to be occupied, the material, dimensions and estimate of cost of the proposed building, structure or improvement, and the

probable time to be occupied in building.

All applications shall be filed in duplicate.

Plans and Specifications to Be Filed.

Section 8. Sub. 1. The person, company or corporation applying for such permit (when the estimated cost of the contemplated improvements exceeds one thousand dollars) shall also file with said Board of Public Works a complete set of plans and specifications of the proposed building, structure or improvement, as hereinafter in Section 9 provided.

The Board of Public Works shall thereupon ascertain whether such plans and specifications embody all requirements applicable by law and ordinance in such case, and if the requirements be met shall issue a building permit to the applicant, giving him permission to erect the building, structure or improvement, at the place and in accordance with said plans and specifications.

Permits to Be Exhibited to Authorities.

Sub. 2. Such permit must be exhibited to any representative of either the Police or Fire Departments or the

Department of Public Works making a demand therefor, and for the purpose of such exhibition it must, during the time of construction, be kept on the premises where the erection, alteration or improvement of the building or structure is being conducted.

Statements to Be Filed in Certain Cases.

Sub. 3. When the estimated cost of erecting any building, structure or improvement, or of altering or making repairs to an existing building or structure does not exceed one thousand dollars (\$1000), the person, company or corporation proposing to make such improvements shall file with the Board of Public Works in lieu of the plans and specifications hereinafter provided for, a statement in writing setting forth what repairs, alterations or improvements are contemplated, and describing the general character, nature and extent of the same.

Manner of Filing Plans, Specifications and Statements and Scope Thereof.

Section 9. Before the erection, construction, alteration or repair of any building, or part of any building, structure, or part of any structure, or wall, or any platform, staging or flooring to be used for standing or seating purposes, and before the construction or alteration or repair of any building, structure, or premises, is commenced, the owner, lessee or agent, or either, or the architect employed by such owner or lessee in connection with the proposed erection or alteration, shall submit to the Board of Public Works a detailed statement of the specification on appropriate blanks to be furnished to applicants by the said Board, and such full and complete copy of the plans and specifications of the proposed work as the said Board may require, all of which shall be accompanied with a statement in writing, giving the full name and residence, street and number of the owner, or each of the owners of said building, or proposed building, structure or proposed structure, premises, wall, platform, staging or flooring. If such erection is proposed to be made or executed by any other person than the owner or owners of the land in fee, the person or persons intending to make such erection or alteration or repair shall accompany said detailed

statement of the specifications with a statement in writing, giving the full name and residence, street and number of the owner, or owners of the land, or proposed building, structure, or proposed structure, premises, wall, platform, staging or flooring, either as owner, lessee or in any representative capacity that he is or they are duly authorized to perform said work. Such statement may be made by the agent or architect of the person or persons herein required to make the same.

Said statement, and detailed statement of specifications, and copy of the specifications and plans, shall be kept on file by the Board of Public Works, and the erection, construction or alteration of said building, structure, wall, platform, staging or flooring, or any part thereof, shall not be commenced or proceeded with until said statements, specifications and plans shall have been so filed and approved by the said Board, and the erection, construction or alteration of such building, structure, platform, staging or flooring when proceeded with shall be constructed in accordance with such approved detailed statement of specifications and copy of specifications and plans and any modifications in drawing or specifications made after approval by said Board shall be subject to its further approval.

Partial Permits.

The Board of Public Works may grant a permit for the erection of any part of the building, or any part of a structure, where plans, specifications and detailed statements have been presented for the same before the entire specification, plans and detailed statements of said building or structure have been submitted.

Expiration and Renewal of Permits.

Any approval which may be issued by said Board pursuant to the provisions of this Ordinance, but under which no work is commenced within six months from the time of issuance, shall expire by limitation, but may, in the Board's discretion, be renewed without further charge.

Demolition of Buildings.

Section 10. When a building is to be demolished the owner, architect or contractor shall file with the Board of Public Works a statement of the work to be done, and no such build-

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ing or part of such building shall be demolished before such statement has been filed and permit has been granted by the said Board therefor.

In demolishing any building, story after story shall be completely removed. No material shall be placed upon the floor of any such building in the course of demolition, but the brick, timbers and other structural parts of each story shall be lowered to the ground immediately upon displacement. The owner, architect, builder or contractor for any building, structure, premises, wall, platform, staging or flooring to be demolished shall give twenty-four hours' notice to the Board of Public Works of such intended demolition.

Non-Liability of City and County for Damages.

Section 11. Every application shall contain an agreement to save the City and County and its officials harmless from all costs and damages which may accrue from use or occupancy of the sidewalk, street or sub-sidewalk space.

Fees for Permits.

Section 12. The applicant or applicants for such building permit shall pay to the Board of Public Works for expenses of inspection and examination of the building and plans and specifications the sum of two (2) dollars if the estimated cost of said building, structure, alteration or improvement shall be more than five hundred (500) dollars and less than one thousand (1000) dollars; the sum of seven (7) dollars and fifty (50) cents if the estimated cost is one thousand (1000) dollars or more, and less than two thousand (2000) dollars; the sum of ten (10) dollars, if the estimated cost is two thousand (2000) dollars or more and less than five thousand (5000) dollars; the sum of seventeen (17) dollars and fifty (50) cents if the estimated cost is five thousand (5000) dollars or more, and less than ten thousand (10,000) dollars; the sum of twenty-five (25) dollars if the estimated cost is ten thousand (10,000) dollars or more, and less than fifteen thousand (15,000) dollars; the sum of thirty (30) dollars, if the estimated cost is fifteen thousand (15,000) dollars or more, and less than twenty thousand (20,000) dollars; the sum of forty (40) dollars, if the estimated cost is twenty

thousand (20,000) dollars or more and less than twenty-five thousand (25,000) dollars; and the sum of two (2) dollars additional for every five thousand (5000) dollars or fraction thereof in excess of twenty-five thousand (25,000) dollars. Where the estimated cost of said building or structure or alteration is five hundred (500) dollars, or less, there shall be no charge made for issuing building permits to applicants desiring the same.

Removal Permits.

Section 13. No building shall be moved from one lot to another until a statement setting forth the purposes of said removal and the uses to which said building is to be applied is filed with the Board of Public Works, and unless a permit be first obtained therefor. No charge shall be made for such permit.

No wood frame building shall be moved from one place to another within the fire limits, nor from without to within the fire limits.


New Devices and Materials.

Section 14. In cases in which it is claimed that any equally good or more desirable mode or manner of construction or material, or device for fireproofing, other than specified in this Ordinance can be used in the erection or alteration of buildings, the application to them for a permit to use the same, shall have power to appoint a Board of Examiners consisting of not less than three nor more than five members, one of whom must be an architect, one a civil engineer and one a builder, each of whom shall have had at least ten (10) years' experience in San Francisco as an architect, civil engineer or builder, who shall take the usual oath of office. Said examiners shall adopt rules and specifications for examining and testing such mode or manner of construction, or material, or device for fireproofing, and furnish a copy of the same to the applicant. The said examiners shall thereupon notify such applicant to submit to such examination and to make tests in the presence of the said examiners, or a majority thereof, according to such rules and specifications. All expenses of such examiners and of such examinations and tests shall be paid by the applicant, and said examiners may require security therefor.

The said examiners shall after such

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examination and tests certify the results and their decision on the said application to the Board of Supervisors, who shall have power, in the event of the examination and tests being satisfactory, to grant a permit to the applicant in accordance with such decision of the said Board of Supervisors.

PART IV. DEFINITION OF TERMS.

Alterations.

Section 15. "Alterations" mean any change or addition.

Repairs.

"Repairs" mean the reconstruction or renewal of any existing part of a building, or of its fixtures or appurtenances, by which the strength or the fire risk is not affected or modified.

Party Wall.

"Party wall" means a wall used, or built to be used, in common by two or more buildings.

Partition Wall.

"Partition wall" means any interior wall other than a division wall.

Bearing Wall.

"Bearing wall" means any wall carrying the interior load of a building.

Exterior Wall.

"Exterior wall" means every outer wall or vertical enclosure of a building other than a party wall.

Fire Wall.

The term "fire wall" shall apply to all walls in fireproof, slow burning and ordinary buildings built for the purpose of fire resistance. They may or may not be bearing walls. The term also applies to that portion of walls above roof surface.

Retaining Wall.

The term "retaining wall" shall apply to all walls constructed for the purpose of holding back or supporting earth.

Division Wall.

The term "division wall" means any wall other than an exterior wall, or a party wall, which extends the full height of a building and through the roof, and such walls shall be in all respects as provided for party walls.

Thickness of Wall.

The term "thickness of a wall"

means the minimum thickness of such wall between floors, or between floor and ceiling or roof.

Cellar or Basement.

The term "cellar or basement" means a lower story any part of which is below the level of the street, or streets, on which it faces, or of the general level of the ground for more than one-half the height of such lower story.

Story.

The term "story" means (for the calculation of the thickness of foundation and size of studding) any part of a building of which three-quarters or more of said part is above the level of the street or streets, on which it faces, or the general level of the ground, and which exceeds seven feet six inches in height.

Terra Cotta.

The term "terra cotta," when used alone, shall apply to the hand-molded, baked clay material used for architectural decoration and construction of walls.

Hard Terra Cotta Fireproofing.

The term "hard terra cotta fireproofing" shall apply to all clay fireproofing material that is manufactured without sawdust.

Semi-Porous Terra Cotta Fireproofing.

The term "semi-porous terra cotta fireproofing" shall apply to all clay fireproof material having fifty per cent of sawdust, measured by volume, mixed with fifty per cent of clay.

Steel Frame Construction.

The term "steel frame construction" shall apply to every metal frame used for the support of a building. The term "steel frame" shall include all the cast and wrought iron, as well as steel, used in the construction.

Girders.

The term "girders," in floor construction, shall apply to all beams that are used for the support of other beams.


Reinforced Concrete Construction.

The term "reinforced concrete construction" shall apply to all concrete used in the construction of posts, beams, lintels, girders, arches, walls and floors which are strengthened by iron or steel mesh, wires, cable, bars or shapes, embedded in the concrete.

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Dead Load.

The term "dead load" shall apply to and include the weight of the walls, floors, etc., of a building, including all permanent construction.

Live Load.

The term "live load" shall apply to and include all weights in a building other than dead loads. Such loads shall include temporary construction, furniture and people.

Ton.

The term "ton" means 2000 ponds.

Building.

The term "building" shall apply to any structure which can be occupied for living purposes, or for business, or for a shelter.

Masonry.

The term "masonry" shall apply to brick, stone, concrete or reinforced concrete construction.

Measurements for Height, Length and Width of Buildings.

Section 16. For the purpose of this Ordinance the greatest linear dimension of any building shall be its length, and the next greatest linear dimension its width.

The height of buildings shall be measured from the curb level at the center of the main front of the building to the top of the highest point of the roof beams in case of flat roofs, and for high pitched roofs the middle of the height of the gable shall be taken as the highest point of the building.

For a building erected upon a street corner, the measurements shall be taken from the curb level opposite the center of either front.

When the ground upon which the walls of a structure are built is above the street level the average level for the ground adjoining the walls may be taken instead of the curb level for the height of such structure.

Dwellings.

Section 17. A "dwelling" is a building which shall be intended or designed for or used as the home or residence of not more than two separate and distinct families or households, and in which not more than fifteen rooms shall be used for the accommodation of boarders, and no

part of which structure is used as a store or for any business purpose. Two or more such dwellings may be connected on each story and used for boarding purposes, provided the halls and stairs of each house shall be left unaltered and kept open and in use as such.

Apartment Houses.

Section 18. An "apartment house" is a building containing separate apartments, with self-contained conveniences for three or more families having a street entrance common to all.

Tenement Houses.

Section 19. A "tenement house" is a building similar to an apartment house, except that the tenements of which it is composed have no self-contained conveniences.

Flats.

Section 20. "Flats" is a building of two or more stories containing separate self-contained dwellings, each having an independent street entrance.

Hotel.

Section 21. A hotel is a building or part thereof intended, designed or used for supplying food and shelter to residents or guests and having a general public dining room or cafe, or both, and containing more than fifteen guest rooms.

Office Building.

Section 22. An office building is a building divided into rooms above the first story and intended and used for office purposes, and no part of which shall be used for living purposes, except by the janitor and his family.

Lodging House.

Section 23. A lodging house is a building containing more than fifteen rooms in which persons are or may be accommodated with sleeping apartments for hire, by the day, week or month.

Warehouse.

Section 24. A warehouse is a building used exclusively for the storage of merchandise.

Hospital, Sanitarium or Sanitorium.

Section 25. A hospital, sanitarium or sanitorium is a building used for sick and the care of invalids and infirm people.

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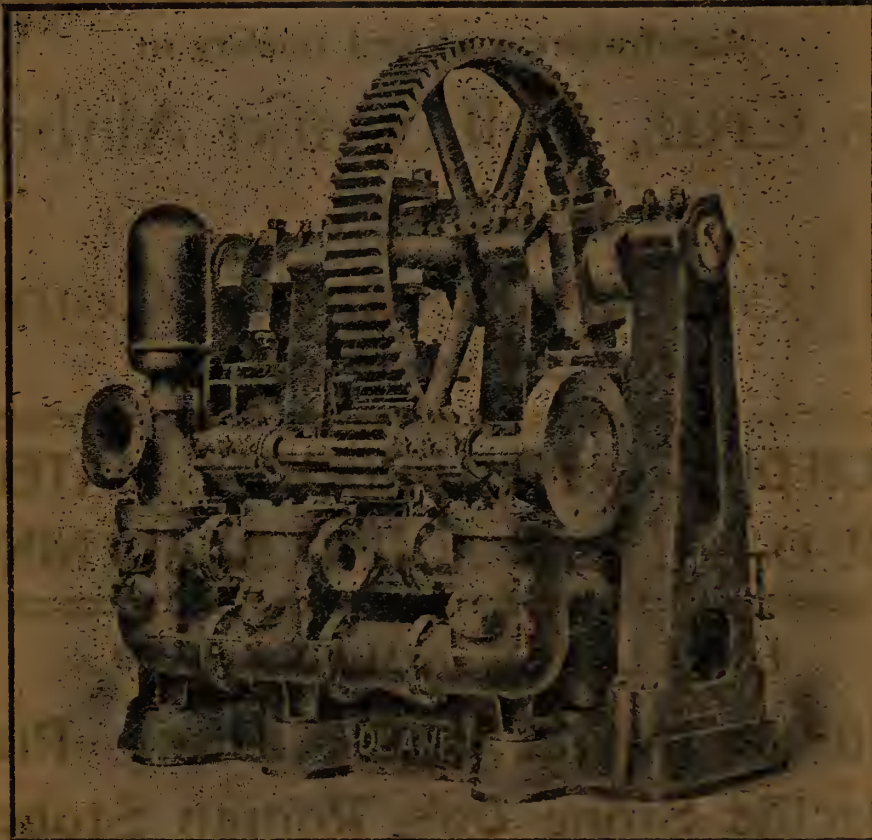
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PART V.**RELATING TO MATERIALS AND TESTS.****Brick.**

Section 26. The brick used in all buildings shall be good, hard, well-burnt brick, or some approved form of hard sandlime or cement brick.

All materials must be of good quality.

When old brick are used in any wall they shall be thoroughly cleaned before being used, and shall be whole and good, hard, well-burnt brick.

Sand.

Section 27. The sand used for mortar in all buildings shall be clean, sharp, grit sand, free from loam or dirt.

Lime Mortar.

Section 28. Lime mortar shall be made of one part lime and not more than five (5) parts of sand, measured dry. All lime used for mortar shall be thoroughly burnt, of good quality, and properly slaked before it is mixed with the sand. Such mortar must be mixed at least ten (10) days before using.

Portland Cement.

Section 29. The standard of every brand of Portland cement, the use of which is permitted in the City and County of San Francisco, shall be maintained in quality, burning, fineness, chemical analysis, physical tests, and in every other consideration by which the good character of cement is determined. It shall meet the following specific requirements.

In specific gravity it shall be not less than 3.1, thoroughly dried at 212 degrees Fahrenheit.

In fineness at least 92 per centum shall pass a No. 100 standard testing seive, and at least 80 per centum shall pass a No. 200 seive.

In chemical analysis it shall contain not more than 4 per centum magnesia (MgO), nor more than per centum gypsum ($CasO_4$).

In pat test pats of neat cement about one-half inch thick and three inches in diameter, with thin edges, after hard set in air or immersed in water, shall show no sign of cracking, discoloration or disintegration, and when submitted to the boiling test shall give satisfactory evidence of soundness, without cracking blowing or warping.

In tensile tests neat cement briquettes shall develop the following tensile strength per square inch:

24 hours in water, after hard set125 lbs

7 days, 1 day in air and 6 days

in water450 lbs

28 days, 1 day in air and 27

days in water600 lbs

In tensile tests sand briquettes made of a standard sand passing as No. 20 sieve and retained on a No. 30 sieve, 3 parts of sand to 1 of cement, by weight, shall develop the following tensile strength per square inch:

7 days, 1 day in air and 6 days

in water125 lbs

28 days, 1 day in air and 27

days in water300 lbs

Cement Mortar.

Section 30. Cement mortar shall be made of cement and sand in the proportion of one part of cement and not more than three parts of sand, and shall be used within twenty (20) minutes after being mixed. The cement and sand are to be measured and thoroughly mixed before adding water.

Cement and Lime Mortar.

Section 31. Cement and lime mortar, mixed, shall be made of one (1) part cement to six (6) parts of lime mortar, measured in a box, and shall be used within thirty (30) minutes after the cement is mixed in. Said mortar, except as to the cement used therein, shall be mixed at least ten (10) days before using.

Concrete.

Section 32. Concrete shall be made of Portland cement, sharp, clean sand and broken stone, broken brick, terra cotta or cinders. Concrete made with broken stone shall be termed rock concrete. Rock concrete for foundation shall be composed of one part Portland cement, three parts sand, and five parts broken stone of major dimensions not more than two inches. Rock concrete for floors, backing of ashlar, fire proofing and reinforced concrete walls shall be composed of one part Portland cement, two parts sand and four parts broken stone of major dimensions not exceeding one inch.

Concrete made of broken brick, terra cotta or cinders shall be mixed in the proportion of one part of Portland cement, two parts of sand and four

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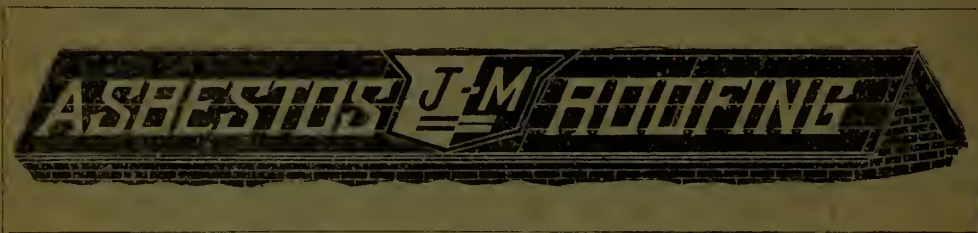
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parts of broken brick, terra cotta or cinders, as the case may be. Such concrete shall only be used for floor slabs and fireproofing. The brick and terra cotta must be thoroughly wetted before using.

Reinforced Concrete.

Section 32A. Reinforced concrete shall be as edscribed under "Reinforced Concrete" in Class B buildings.

Lumber.

Section 33. All lumber used in construction of building shall be free rom large, loose or rotten knots, wind shakes and other defects.

TABLE OF UNIT STRESSES.

Lumber.

Section 34. The following unit stresses (pounds per square inch) shall be used:

	White Pine Spruce	Doulgas Oregon Yellow Fir.	Washington or Red Fir.	Redwood
Tension with grain	700	1,200	1,000	700
Tension across grain	50	200	150	40
Compression with grain end bearing..	1,100	1,600	1,300	1,000
Columns under fifteen diameters.....	700	1,200	900	800
Across grain	200	300	250	200
Transverse extreme fibre stress	700	1,100	800	750
Modulus of elasticity ..	500,000	700,000	550,000	350,000
Shearing with grain	100	150	125	100
Shearing across grain	500	750	1600	400

Piles.

Section 35. Piles for foundations shall be of timber or reinforced concrete. Timber piles shall be at least eight inches in diameter at the smaller tnd. Reinforctd concrete piles shall be made of concrete and steel after a method which must be submitted for approval in the manner specified for the adoption of new forms of construction. The provisions of Section 164 and following sections of this Ordinance governing the use of reinforced concrete shall apply to the construction of reinforled concrete piles in so far as applicable.

Wrought Iron.

Section 36. All wrought iron shall be uniform and fibrous. It shall have an ultimate tensile resistance of not less than 48,000 pounds per square inch, and elastic limit of not less than 24,000 pounds per square inch, and an elongation of 20 per centum in eight inches when tested in small test pieces.

Steel.

Section 37. All structural steel used in buildings in the City and County of San Francisco shall be free from seams, flaws, cracks, defective edges or other defects, and shall have a smooth, uniform finish. It may be made by either the Bessemer or Open Hearth process.

All structural steel used in beams and columns and in other large members shall hav ean ultimate tensile re-

sistance of from 60,000 pounds to 70,000 pounds per square inch, an elastic limit of not less than one-half of its ultimate strength and a percentage of elongation in eight inches equal to 22 per centum. Such steel shall also bend 180 degrees to a diameter equal to the thickness of the piece tested without fracture on the outside of the bent portion, when tested in a test piece, and shall not contain more than one-tenth of one pre centum of phosphorus when made b ythe acid process, nor more than five-hundredths of one per centum when made by the basic process.

Rivet steel shall have a resistance of from 48,000 pounds to 58,000 pounds per square inch, an elastic limit not less than one-half of its ultimate strength, and a percentage of elongation in eight inches equal to 26 per centum of phosphorus.

Cast Steel.

Section 38. All cast steel column bases and all other important steel castings shall have coupons cast with each casting. Such steel shall have not more than one-tenth of one per centum phosporus, when made by the acid process, nor more than five-hundredths of one per centum when made by the asic process.

All steel castings shall be annealed.

Cast Iron.

Section 39. All cast iron castings

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shall be free from injurious blow-holes, clod-shuts and einder spots. Sample bars one inch square, cast in sand molds, in a span of twelve inches, shall bear a central load of 2400 pounds with a minimum deflection of one-tenth of an inch before breaking.

PART VI.

Classification, Heights and Description of Buildings.

Section 40. For the purposes of this Ordinance buildings are divided into Class "A," Class "B," Class "C" Mill Construction and Frame Buildings.

Class "A" Buildings.

Section 41. Class "A" buildings shall be built with a steel frame supporting all floor and wall loads. The structural parts shall be built of incombustible materials. Class "A" buildings may be built anywhere in the City and County; provided, however, that no building of this class shall be constructed to a greater height than one and one-half ($1\frac{1}{2}$) times the width of the street upon which it fronts.

Class "B" Buildings.

Section 42. Class "B" buildings shall be built with the walls supporting the adjacent floor loads and with steel or reinforced concrete columns. The maximum limit of height of this class of buildings shall be one hundred and two (102) feet, and the structural parts and the roof shall be of incombustible material; provided, however, that no building of this class shall be constructed to a greater height than one and one-half ($1\frac{1}{2}$) times the width of the street upon which it fronts.

Class "B" buildings may be built anywhere in the City and County; provided, however, that this type of construction shall not be permitted for theaters.

Class "C" Buildings.

Section 43. Class "C" buildings shall be built with walls supporting the adjacent floors supported by studded partitions, or by wooden or steel girders. Combustible material may be used in all parts except walls. The limit of height of this class of buildings shall be eighty-four (84) feet if metal lath be used on all floor and ceiling joists and girders, studding, wood furring and soffits of stairs; and the limit of height shall be fifty-five (55) feet if wooden lath be used, or if not lathed; provided, however, that no building of

this class shall be constructed to a greater height than one and one-half ($1\frac{1}{2}$) times the width of the street upon which it fronts.

Class "C" buildings may be built anywhere in the City and County, provided, however, that this type of construction shall not be permitted for hospitals, sanitariums or sanitoriums, or within the fire limits, for halls or places of public assemblage.

Mill Construction.

Section 44. Buildings of the type designated "Mill Construction" and hereinbefore defined in Section 4 of this Ordinance may be constructed within the limits described in said section. The height of said buildings shall not exceed forty-five (45) feet.

Frame Buildings.

Section 45. Frame buildings may be constructed to a height not exceeding forty-five (45) feet, anywhere in the City and County except within the fire limits, hereinbefore defined and established; provided, however, that this type of construction shall not be permitted for theaters, hospitals, sanitariums or sanitoriums.

Said buildings may be built entirely of combustible materials in the structural parts except the roofs of those buildings within the limits described in Section 5 of this Ordinance, relating to fireproof construction.

General Height Limitations.

Section 46. Buildings throughout the city shall not exceed in any case one and one-half ($1\frac{1}{2}$) times the width of the street upon which they front. Buildings fronting upon two streets shall be governed in height by the width of the wider street. Where no street is established the height of buildings shall be determined by the Board of Public Works.

It shall be understood as the meaning of the height limitation clauses, both general and special, that the height fixed in either case is a maximum. That no special clause shall allow a higher building than that fixed by the general clause, and that the general clause shall not work to permit the erection of a higher building than that allowed by the special clause.

Department Stores.

Section 47. Department stores, warehouses and buildings without par-



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titions used for the storage of merchandise shall be either Class "A," Class "B" or Class "C" construction, and shall be limited to the heights prescribed for said types of construction; provided, however, that no building of this character shall be constructed to a greater height than 102 feet.

Places of Public Assemblage.

Section 48. Halls and places of public assemblage within the firelimits seating more than 300 people shall be of Class "A" or Class "B" construction.

PART VII.

Hospitals.

Section 49. Every building hereafter erected and every building now erected and not now used, but hereafter to be used for hospital or sanitarium purposes for human beings, shall be of Class "A" or Class "B" construction.

PROVISIONS RELATING TO CONSTRUCTION OF CLASS "A" BUILDINGS.

Floor Loads.

Section 50. The dead loads in Class "A" buildings shall consist of the actual weight of the walls, roofs, partitions and all permanent construction.

The live or variable loads shall consist of all loads other than dead loads.

Every floor shall be of sufficient strength to bear safely the weight to be imposed thereon in addition to the weight of the materials of which the floor is composed. If to be used as a dwelling house, apartment house, tenement house, hotel or lodging house, each floor shall be of sufficient strength in all its parts to bear safely upon every superficial foot of its surface not less than sixty pounds; if to be used for office purposes, not less than seventy-five pounds upon any superficial foot above the first floor, and for the latter floor one hundred and fifty pounds; if to be used as a school or place of instruction, not less than seventy-five pounds upon every superficial foot; if to be used for stable and carriage house purposes not less than seventy-five pounds upon every superficial foot; if to be used as a place of public assembly, not less than one hundred and twenty-five pounds

upon every superficial foot; if to be used for ordinary stores, not less than one hundred and twenty pounds upon every superficial foot; if to be used as a store where heavy materials are kept and stored, warehouse, factory or other manufacturing or commercial purpose, not less than two hundred and fifty pounds upon every superficial foot.

The strength of factory floors intended to carry running machinery shall be increased above the minimum given in this section in proportion to the degree of vibratory impulse liable to be transmitted to the floor, as may be required by the Board of Public Works.

The roofs of all buildings having a pitch of less than twenty degrees shall be proportioned to bear safely fifty pounds upon every superficial foot of their surface in addition to the weight of materials composing the same. If the pitch be more than twenty degrees the live load shall be assumed at thirty pounds upon every superficial foot measured upon an horizontal plane.

For sidewalks, between the curb and area lines, the live load shall be taken at three hundred pounds upon every superficial foot.

All beams in the building shall be proportioned to carry the full dead and live load. In buildings used for offices, dwellings, apartment houses, hotels, lodging houses, hospitals and schools all girders shall be proportioned to carry the full dead load and eighty per centum of the required live load, and the columns shall be proportioned to carry the full dead load and sixty per centum of the required live load.

In buildings used for warehouses, stores, libraries, halls and theaters, all beams, girders and columns shall be designed to carry the full dead and live load.

Section 51. The weight placed upon any of the floors of any building shall be safely distributed thereon. The Board of Public Works may require the owner or occupant of any building or of any portion thereof to redistribute the load on any floor or to lighten such load, where it deems it necessary so to do.

Strength of Temporary Supports.

Section 52. Every temporary support placed under any structure, wall,

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girder or beam during the erection, finishing, alteration or repairing of any building or structure, or any part thereof, shall be of sufficient strength to safely carry the load to be placed thereon.

Weights of Materials.

Section 53. The weight of each piece or combination of materials used in the construction of any building shall be ascertained by computation according to the rules given by Trautwine's "Engineers' Pocket-Book," and F. E. Kidder's "Architects' and Engineers' Pocket-Book," except as may be otherwise provided in this Ordinance.

Section 54. In computing the weights of walls, floors and materials a cubic foot of materials shall be deemed to have the weight given in the tables of the above mentioned hand-books.

Foundations and Loads on Soils.

Section 55. All foundations shall be calculated for the full column loads obtained by the loads given in Section 50. Soils carrying foundations shall not be loaded more than the following number of tons per square foot:

	Tons.
Soft clay	1
Sand and clay mixed	2
Firm dry clay	3
Hard clay	4
Loam or fine dry sand	3
Compact sand	4
Coarse gravel	6
Shale rock	10
Hard rock	20

Section 56. The Board of Public Works may make investigation of special forms of foundation and issue permits for such if approved. They may call for a test of soils, which must be made by the owner in such manner as the Board may provide.

Piles.

Section 57. Buildings may be founded on timber or reinforced concrete piles. Piles shall be so spaced that there is a clear space of at least 12 inches on each side. Piles reaching to rock may be loaded, in case of timber piles, not over 500 pounds per square inch of middle section, and in case of concrete piles not over 700 pounds per square inch of area of middle section.

Piles driven in yielding material shall not be loaded to exceed $1\frac{1}{2}$ tons per inch in diameter of middle section, and no such pile shall be loaded to ex-

ceed 20 tons. No pile shall be less than 20 feet in length below cut off.

Timber piles shall be cut off below standing water line and capped with timber or concrete. If capped with timber it shall be below standing water line.

Concrete.

Section 58. Concrete for foundations shall be made of one part best Portland cement, two parts sand and five parts broken rock of 2 inches major dimension, or gravel. It may be mixed by hand (turned twice dry and twice wet) or by machine. Suitable rigid forms must be built and the concrete rammed in place in layers not over 6 inches thick.

Retaining Walls.

Foundations of concrete, whether of walls or piers, if provided with battered faces must not have a slope greater than an angle of 3 degrees, from a vertical line taken from the ledge of the imposed column or wall. Concrete provided with reinforcement may be varied from this provision. Sidewalk area walls with a steel beam and concrete sidewalk shall be 17 inches thick at top, increasing by four inches in thickness every four feet increase in depth. All other retaining walls shall be designed by standard formulas.

Unit Loads on Materials in Foundations

Section 59. Concrete in foundations shall be loaded to not exceed 230 lbs. per square inch. Granite shall not be loaded to exceed 375 lbs. per square inch.

Anchoring Columns.

Section 60. Buildings over one hundred feet in height, or where the height exceeds three times the least horizontal dimension, shall have at least two anchors of $1\frac{1}{2}$ square inches section each, fastened to column and passing into the concrete to within one foot of soil. Anchor to have washer of size sufficient to develop strength of anchor. This does not apply to columns embedded in side retaining walls.

Grillage.

Section 61. Where steel beams are used in grillage foundations, there shall be a layer of concrete 12 inches thick between the bottom of the lowest beam and the soil and at least 6 inches of concrete between the steel and soil on the sides, ends and tops of the beams. The upper tiers of

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beams shall have standard separators.

Reinforced Concrete.

Section 62. Columns may rest upon reinforced concrete slabs. No reinforcing shall be less than 6 inches from the soil.

Bases.

Section 63. Columns shall rest upon castiron or steel bases and all columns shall have some form of base plate or base, which may be leveled before placing the column. Granite levelers not less than 12 inches thick may be used.

Shape of Foundations.

Section 64. Foundations under columns shall be symmetrical except under wall columns, where the center line of the columns must lie within the middle third of the foundation section. In this case the intensity of pressure on soil at the wall line must not exceed the allowed limit, due consideration being taken of any wall load in addition to the column load.

Combined Foundations.

Section 65. In cases where the wall column load exceeds the above provision, the column must rest upon a steel or reinforced concrete girder having an interior column or columns at the inner end. The foundation shall then be designed for the combined loads. This section does not apply to party walls and foundations.

Combination foundations or inverted arches of brick, stone or concrete masonry may be used in connecting piers or walls, in which case the arch shall be ample to support the load and the thrust taken by embedded tie-rods.

Special Forms of Foundations.

Special forms of foundations, such as caissons, may be used after approval by the Board of Public Works.

STEEL FRAME.

Unit Stresses.

Section 66. Unit stresses allowed on steel members shall be as follows:

Direct Compression.

(Pounds per square inch.)

Rolled steel	16,000
Cast steel	16,000
Wrought iron	12,000
Cast iron	16,000
Steel pins, rivets (bearing)	20,000

Direct Tension.

(Pounds per square inch.)

Rolled steel, net section	16,000
Cast steel, net section	16,000
Wrought iron, net section	12,000
Cast iron (not to be used if avoidable)	3,000

Direct Shear, Net Section.

(Pounds per square inch.)

Rivets and pins (steel)	10,000
Field rivets (steel)	8,000
Field rivets (iron)	6,000
Steel web plates	9,000
Wrought iron plates	7,000

Extreme Fibre Stress in Bending.

(Pounds per square inch.)

Rolled beam	16,000
Riveted girders, net section of whole girder	15,000
Cast iron tension	3,000
Cast iron compression	16,000

STEEL COLUMNS.

Compression.

Section 67. The dead and live load stresses together shall not exceed in any case 12,000 pounds per square inch. When columns have a length greater than 90 times the least radius of gyration the allowed stress per square inch shall be $17,100 - 57(L:r)$ ($L:r$; L equals length in inches; r equals least radius of gyration in inches). An increase of 50 per centum above the allowed dead and live load stress shall be used for wind stresses. Columns subjected to cross bending by wind or eccentric loading shall have additional area to provide for the stresses, the eccentric loading being calculated as dead load and the wind provided above. The areas of metal thus obtained for wind, cross bending and eccentric loading shall be added to the area provided for dead and live load to obtain the total metal in columns. No column shall have unsupported a length greater than 120 times the least radius of gyration.

Construction.

Section 68. Columns shall be of rolled steel shapes connected by rivets. No wall columns and columns with eccentric loads shall be used which do not have at least one solid web of metal along or parallel to one axis of cross section. In building over 100 feet in height, or where the height is greater than three times the least horizontal dimension, columns shall be of length to reach through two stories, and splices of adjacent columns, when

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possible, shall be made at different stories, unless the building is symmetrical about one axis, in which case, for ease in construction, it may be well to make the similarly situated columns alike. The main idea, however, should be preserved, i. e., about one-half the column should be spliced at every second floor and the remainder at the adjacent floors. Such columns shall be spliced with connecting side plates riveted.

Wind Bracing.

Section 69. In buildings over one hundred feet high, or where the height exceeds three times the least horizontal dimension, the following provisions of this section shall apply: The steel frame shall be designed to resist a wind force of 30 pounds per square foot acting in any direction upon the entire exposed surface. All exterior wall girders shall have knee-brace connections to columns. Provision shall be made for diagonal, portal or knee-bracing to resist wind stresses, and such bracing shall be continuous from top story to and including basement.

Connections.

Section 70. All buildings except as mentioned in Section 69 shall have beams and girders connected by standard brackets and connections. All parts of the steel frame shall be riveted except where rivets cannot be driven, in which case fitted bolts may be used in reamed holes. Steel beams may be replaced by reinforced concrete beams as per Section 168, in which case columns must be connected by girders or beams at least 8 inches deep.

Walls on Steel.

Section 71. Proper provision shall be made in the steel frame to support all wall and other loads. All walls shall have bearing on steel at least equal to one-half the width of wall. All supported material shall be anchored to the steel frame and proper provision must be made in the frame for this purpose.

Fire Wall.

Section 72. Fire and other walls projecting above the roof surface shall be connected with the steel frame, which must extend to within one foot of the top of such walls.

Roof Trusses.

Section 73. Roof trusses shall be of

steel and where over 45 feet span they shall rest upon steel columns which shall extend to the basement.

Plate Girders.

Section 74. All plate girders shall be provided with stiffeners at the points of support, and under concentrated loads, intermediate stiffeners shall also be used at distances apart equal to the depth of the girder, providing the shearing stresses S per square inch exceed that given by the following formula:

$$S = \frac{15,000}{1 + \frac{d^2}{3000t^2}}$$

d—Clear distance between flange angles.
t—Thickness of web in inches.

Castiron Lintels.

Section 75. Castiron lintels shall not be permitted to span openings exceeding eight feet in clear width.

Bearing Plates and Girder Straps.

Section 76. When girders, beams and lintels rest upon brick walls or piers they shall rest upon granite blocks at least ten inches in thickness and of proper size to distribute the load, or upon iron or steel plates of equal strength and of the same width and length, so that the maximum load on the brickwork shall not exceed ten tons per square foot.

Wall Anchors.

Wall anchors of approved design shall be used at the ends of girders, beams and lintels resting on walls.

Miscellaneous.

Section 77. No material shall be used in columns less than 0.2 inches thickness. This shall apply to webs of channels. No brackets on columns supporting a beam shall have less than four rivets.

No part of the metal of columns shall be less than 8 inches from any outside or court-wall line. No part of any supporting girder beam or lintel shall be less than $1\frac{1}{2}$ inches from any outside or court wall.

Fabrication of material shall be in accordance with standard practice, and the decision of the Board of Public Works shall be final upon disputed points.

Walls.

Section 78. Walls of buildings shall be built of brick, stone, concrete, terra

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cotta, concrete blocks or other material approved by the Board of Public Works. All walls shall rest upon the steel frame from the level of the second floor. No chase shall be built or cut in any wall.

Blocks.

Section 79. Concrete blocks shall be of dense concrete, with courses not over 12 inches deep, except in ornamental courses. Walls shall be at least 12 inches thick. Blocks shall be of concrete at least 2 inches thick at all parts, and shall be made interlocking and set in Portland cement mortar.

Terra Cotta.

Section 80. Terra cotta blocking may be used in outside walls and in courts. On outside walls it shall be set in cement mortar and tied to the steel frame by anchors of at least one-half inch diameter round iron. Window mullions of terra cotta shall have a vertical steel member enclosed and connected to the steel frame.

Concrete.

Section 81. Reinforced concrete walls shall be at least six inches thick. If the area of wall surface included between any two adjacent wall columns and adjacent floor girders exceeds 300 square feet and is less than 400 square feet, the thickness of the wall shall not be less than eight inches. If such area exceeds 400 square feet, the wall thickness shall not be less than twelve inches, supported on the steel frame at each story. If the concrete be not reinforced the minimum thickness of walls shall be twelve inches.

Area Steel Reinforcement.

In reinforced concrete walls the area of steel reinforcement shall aggregate 1 per centum of the area of the concrete, one-half of which shall be placed vertically and one-half placed horizontally. No reinforcement shall be spaced more than 12 inches apart. Additional reinforcement shall be placed around openings, and all reinforcement shall be wired at each intersection. All reinforcement shall be rigidly connected at columns and girders to the steel frame.

Brick.

Section 82. Brick walls shall be at least 13 inches thick, and all brick shall be laid in cement lime mortar or in cement mortar. All brick shall be

completely surrounded by mortar except on the face.

In all brick walls every sixth course shall be a heading course.

All brick walls shall have a supporting part of the steel frame, which shall extend to within 2 inches of the face of the wall.

Ashlar Facing.

Section 83. Stone used for the facing of any building, and known as Ashlar, shall be not less than four (4) inches thick.

Stone ashlar shall be anchored to the backing, which shall be at least 13 inches thick, of concrete or of brick, making the total wall thickness at least 17 inches.

Iron ashlar plates used in imitation of stone ashlar on the face of a wall shall be backed with the same thickness of brick work as stone ashlar. And all ashlar stones, unless bonded, shall be strongly and securely anchored to the wall with iron anchors laid into the stone at least one (1) inch.

Mortar for Walls and Ashlar.

Section 84. All walls, isolated piers, parapet walls and chimneys above roofs, and all other walls built of brick and stone, shall be laid in lime and cement mortar. The backing of all stone ashlar shall be laid with cement mortar, or cement and lime mortar mixed, but the back of the ashlar may be parged with lime mortar to prevent discoloration of the stone. If backing is of concrete it shall be of the proportions specified under Section 164 and following sections of this Ordinance, for reinforced concrete.

FLOORS, ROOFS, FIREPROOFING, PARTITIONS AND CEILINGS.

Section 85. All floors shall be built of stone, gravel, brick, terra cotta, cinder or other concrete, or of terra cotta or of brick, or of iron and steel or other approved material.

Concrete Floors.

Section 86. If floors are built of stone, gravel, brick, terra cotta, cinder or other concrete, the concrete shall be of the proportions given in Section 32 of this Ordinance. In all concrete floors the least thickness of floor slabs shall be 3½ inches, and there shall be embedded therein a mesh of steel or iron or some other form of steel or iron reinforcement, and the floors

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shall be designated as reinforced concrete floors and be subject to the requirements of Section 164 and following sections of this Ordinance governing the use of reinforced concrete.

Terra Cotta Floors.

Section 87. If floors are built of terra cotta the blocks shall be of approved form and density, semi-porous or porous terra cotta arranged with shapes to form an arch. The shell and walls shall not be less than one inch in thickness. Such arches may be curved or flat. Terra cotta arches shall be set in cement or cement lime mortar.

Brick Floors.

Section 88. If floors are constructed of brick they shall be laid as arches, the brick being laid in cement mortar or in cement lime mortar.

Iron Floors.

Section 89. If floors be constructed of steel or iron, the construction shall be of form approved by the Board of Public Works.

Reinforced Concrete Floors.

Section 90. In buildings more than 100 feet in height the floors shall be constructed upon a framing of steel beams and girders. In buildings less than 100 feet in height reinforced concrete beams may be used, resting upon steel girders. In such cases the columns of the steel beams shall be connected by the girders and by "I" beams not less than 8 inches in depth.

Floor Surface.

Section 91. Floor surface may be of a layer of cement mortar not less than one-half inch thick, or of marble or other form of tiles, or of wooden flooring laid on sleepers. Such sleepers shall be made of beveled lumber and filled between with lean cinder, broken terra cotta, broken brick or stone concrete, averaging at least one inch thick.

Fireproofing.

Section 92. All of the steel frame shall be covered with fireproofing, as follows:

Columns.

All columns shall be protected at all places with a layer of concrete, brick, terra cotta or metal lath and plaster. If of concrete the fireproofing shall be of such thickness as to fill all outer spaces of the columns and to extend at least three inches outside of

the extreme metal of the columns. Concrete may be made of broken stone, broken brick, broken terra cotta or cinders, no part of which shall be over 1 inch in major dimensions. A mesh of metal lath or other form of metal reinforcement shall be placed in this concrete not less than 1 inch from the outer surface thereof.

Terra Cotta.

Section 93. If the fireproofing be made of terra cotta it may be of either dense, semi-porous or porous block, not less than 4 inches thick. A space of 1 inch shall be left between the metal of column and the inside of the terra cotta, which space shall be filled with concrete grouted in. The terra cotta shall be set in cement mortar and the block fastened with metal ties of approved pattern.

Brick.

Section 94. If the fireproofing be of brick, it shall be at least 4 inches thick outside of the column metal and set in cement mortar. The main re-entrant portions of the columns shall also be so filled with brick.

Metal Lath.

Section 95. If the fireproofing be of metal, it shall be of the double form. Lath shall be strapped around the steel column and plastered with cement mortar. A second sheathing of lath shall be placed outside of the first, separated therefrom by an air space of at least 3 inches. The outer sheathing of lath shall be rigidly supported by the column and covered with cement mortar.

Provided that around columns covered by brick or stone the thickness of fireproofing shall be increased 1 inch above the dimensions given.

Fireproofing to Be Continuous.

Section 96. In all cases of fireproofing it shall be continuous and satisfactory connections must be made at floors and ceilings.

Fireproofing of floor beams, girders and other parts of the steel frame shall be made in the same manner as specified for columns except that all such steel shall be covered at least two inches in its extreme parts. Soffits of beams and girders shall have metal embedded in the concrete bent around the flanges of the beams.

Section 97. If such fireproofing be of terra cotta, the concrete required on columns may be omitted, around beams and girders. Soffits of beams

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shall be protected by at least 2 inches of terra cotta, which shall be locked into the arches or around the flanges of the beams.

Section 98. No pipes of any description shall be laid in any fireproofing, nor shall any fireproofing be cut to allow the passage of any pipe (except through floor panels, duct or other part.

Where in roofs a space is left between the ceiling and roof beams, fireproofing may be omitted from the steel frame, except around columns.

Where columns project above the roof they shall be fireproof, but this shall not apply to exposed beams supporting tanks, etc.

Partitions.

Section 99. Partitions may be made of brick, solid concrete, reinforced concrete, metal lath and plaster, terra cotta or other approved form.

In metal lath partitions, the plaster shall in all cases be carried down behind picture mouldings, chair rails and base boards to the fireproof floor level.

Section 100. Brick shall be laid as specified for walls; solid and reinforced concrete shall be constructed as specified for walls; terra cotta partitions shall not be less than 3 inches in thickness, of dense, semi-porous, or porous terra cotta, set in cement mortar. The lath and plaster partitions shall be made with steel studding. If hollow, there shall be two layers of lathing, but if the partition be made solid one layer of lathing will be sufficient. No wood shall be allowed in the framing or support of any partition. Furring of walls may be made of same material as partition, except that thickness shall not be less than 1 inch.

Ceiling.

Section 101. Ceiling shall be made of reinforced concrete, terra cotta, tile, metal lath and plaster, the provisions relating to floors shall apply. If the ceiling be of metal lath and plaster, the lath shall be suspended from the floor or ceiling beams by a rigid framework, to which the lath shall be firmly applied.

Roof.

Section 102. All roofs of all Class "A" buildings hereafter erected shall be covered with either metal, slate,

tiles, terra cotta, a four-ply pure asbestos roofing or asphaltum, provided, however, that said asphaltum shall be first laid over five plies of felt, or two coats of malthoid, or equivalent prepared roofing, well cemented together and then covered with at least three-quarters of an inch of gravel embedded in said asphaltum, passed through a screen whose meshes shall not exceed one-half inch and rejected by a No. 6 screen.

MISCELLANEOUS.

Tanks.

Section 103. All tanks within building or upon the roof shall be of metal throughout and shall be supported on the steel frame. A 4-inch outlet shall be provided with valve in the bottom of the tank, the valve to be provided with wheel or lever-operating mechanism.

Vents.

Section 104. All openings provided for vents or light shafts, if of greater area than 30 square feet, shall have walls as provided under Section 71 and following sections. If of less than 30 square feet, the walls shall be of the same construction required for partitions.

Vents and light shafts without cover, whether interior or exterior, shall be carried up not less than three feet above the level of roof. When the shaft is covered by a ventilating skylight of metal and glass, the walls shall extend at least two feet above roof.

Elevator Houses.

Section 105. Elevator houses may be built on roofs with brick or reinforced concrete walls. If carried over six feet above roof there shall be a steel frame for the house connected to the main frame of the building.

Fireplaces and Flues.

Section 106. Fireplaces shall conform to the general requirements for same as outlined in Sections 270, 272, 273, 274 and 275. Flues for same shall be not less than 56¼ square inches, section lined with terra cotta. They shall be built of brick or reinforced concrete, at least 4 inches thick. Brick

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shall be set in cement mortar. Such flues shall be supported at each floor by steel frame.

Smokestacks.

Section 107. Smokestacks shall be constructed of steel, brick, or reinforced concrete. If of steel, the metal shall be not less than one-quarter inch thick, increasing towards the bottom as determined by the weight and lateral wind pressure. If of brick, they shall be laid up in cement mortar and shall be 13 inches thick for the upper 60 feet and increasing by 4 inches in thickness for each subsequent 60 feet in height, and have an external batter of 1 in 30. If of reinforced concrete, the thickness shall be one-half that required for brick. The lower 40 feet of all smokestacks shall be lined with firebrick 4 inches thick.

Skylights.

Section 108. All skylights shall have steel or iron supporting frames. Sash shall have metal frames. Sash over elevators, stairs, dumb waiter shafts, public passageways, and theater stage roofs, shall have metal frames and sash, glazed with wired glass not less than one-quarter inch thick or with glass protected above and below with wire screens of not less than No. 12 galvanized wire and not more than 1-inch mesh. The provisions of Sections 291 and 292 of this Ordinance shall also apply to this construction.

Floor and Sidewalk Lights.

Section 109. All openings in floors or sidewalks for transmission of light to floors below shall be covered with floor lights not over 4 inches square nor less than three-quarters of an inch thick, set in metal frames. The provisions of Sections 297 and 315 of this Ordinance shall also apply to this construction.

Cornices, Gutters, and Leaders.

Section 110. All cornices shall be of metal, stone or terra cotta, secured to steel or iron brackets, which shall be supported by and connected to the steel frame of the building. Gutters of metal may be formed in cornices. Proper leaders shall be provided, and no leader shall discharge upon the sidewalk. The provisions of Section 293 of this Ordinance shall also apply to this construction.

Elevators.

Section 111. All elevator enclosures shall be provided with guards and gates. Brick enclosing walls shall be at least 8 inches thick. Sidewalk elevators shall not exceed 35 square feet in area, and the outer edge shall not be more than two and one-half feet from the curb line. The provisions of Sections 301 to 309, inclusive, of this Ordinance shall also apply to this construction.

Elevator shafts in all buildings shall be wholly closed with fireproof material with doors of metal or wire glass.

Stairs.

Section 112. Buildings of less than 10,000 square feet area on the main or ground floor, shall have one main stairway from the first to second floors, and above the second floors one stairway at least three feet wide. In addition there shall be a second stairway above the second floors not less than 2 feet wide; such stairways shall be removed as far as possible from the main stairway, but shall be accessible from the halls and shall extend to the top floor of the building. In all buildings of 10,000 square feet or over in area on the main or ground floor, one stairway shall be provided in addition to the two mentioned above, which shall be not less than three feet wide; a reasonable separation of the three stairways shall be required. Marble treads, if used, shall have metal supports on all sides.

Stand-Pipes for Hose Reels.

Section 113. In every building exceeding 55 feet in height and not over 100 feet, there shall be provided a vertical stand-pipe of not less than three inches in diameter. In every building exceeding 100 feet in height, there shall be provided a vertical stand-pipe of not less than four inches in diameter. These stand-pipes shall be located in halls near stairways, shall be of wrought iron or steel and together with fittings and connections shall be galvanized, and shall be of such strength as to safely withstand at least 300 pounds per square inch water pressure, when installed and ready for service. They shall be connected to water mains, or pumps, with pressure on at all times.

In buildings exceeding 100 feet frontage on two or more streets, there shall be a stand-pipe at each end of hall, and in large buildings there shall be one stand-pipe at each stairway.

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Connection at Bases.

Section 114. Where more than one stand-pipe is required in a building, they shall be connected at their bases by pipes of size equal to that of largest stand-pipes, so that water from any source will supply all the stand-pipes.

Arrangement of Pipes and Connections.

Section 115. Stand-pipes shall extend from the cellar to and through the roof, with a hose connection located from 5 feet 6 inches to 6 feet above the floor level, fitted with approved straightway composition gate valve in each story, including cellar, and a hose connection provided above the roof with the valve controlling latter, located in the stand-pipe under roof and arranged to be operated both from above and below roof. A suitable three-quarter drain pipe and valve shall be provided under the roof for each roof connection. This stand-pipe may be connected with Fire Department stand-pipe at level of first floor, and if connected to said stand-pipe there shall be a horizontal check valve outside of building.

Hose.

Section 116. Hose sufficient to reach all parts of the floor shall be attached to each outlet in the building, and hose for roof-hydrant may be placed on rack on top floor near the scuttle leading to the roof. Hose shall be 1½ inches in diameter, in 50-foot lengths, and provided with standard couplings (with lugs) at each end, all couplings to be of same hose-thread as that in use by the Fire Department, with an increase from 1½ to 3 inches to fit valve on standpipe.

Kind of Hose.

Section 117. Hose shall be approved cotton rubber-lined, made under specifications recommended by the National Board of Fire Underwriters.

Hose Fittings.

Section 118. Each line of hose shall be provided with washers at both ends, and be fitted with play pipe or nozzle of Underwriter pattern, having handles at the base and with discharge outlet not less than five-eighths of an inch in diameter. One spanner shall be located at each hose connection throughout the building.

Water Supplies.

Section 119. In addition to the pro-

vision made for connections to stand-pipes, the water supply may be from city water where pressure is sufficient, automatic fire pump of 500 gallons or more capacity per minute, elevated tank or steel pressure, tank of not less than five thousand gallons capacity.

Check Valve Under Tank.

Section 120. Where a standpipe is connected to a tank there shall be a straightway check valve in a horizontal section of pipe between the first hose outlet in connecting pipe and tank, and said tank must be filled by a separate pipe and not through the stand-pipe.

Location of Pumps and Boilers.

Section 121. Where pumps constituting a supply to stand-pipes are located in the lowest story of a building, they shall be placed not less than two feet above the floor level, and boilers upon which pumps depend for steam shall be arranged so that flooding of fires under same will be impossible.

Elevator.

Section 122. In every building exceeding one hundred feet in height at least one passenger elevator shall be kept in readiness for immediate use by the Fire Department during all hours of the day and night, including holidays and Sundays.

Auxiliary Fire Appliances.

Section 123. All existing buildings and those hereafter erected exceeding one hundred feet in height shall be provided with such auxiliary fire apparatus and appliances as wrenches, spanners, fire extinguishers, hooks, axes and pails, as may be required by the Chief of the Fire Department; all of said apparatus to conform in design to those in use by the Fire Department.

Reinforced Concrete.

Section 124. Wherein in the above provisions relating to Class "A" construction reference is made to reinforced concrete, it shall be built in conformity with type of construction relating to Class "B" buildings.

THEATERS.

Section 125. For the purpose of this Ordinance all theaters or opera houses hereafter constructed shall be of Class "A" construction.

The following special provisions shall apply to their construction, in addition to the provisions relating generally to Class "A" buildings.

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Permit to Use Building.

Section 126. Every theatre or opera house hereafter erected, to be used for theatrical or operatic purposes, must be constructed in accordance with the requirements of the ordinance relating to Class "A" or steel frame construction. No building which at the time of the passage of this Ordinance is not in actual use for theatrical or operatic purposes, and no building hereafter erected not in conformity with the requirements of this Ordinance, shall be used for theatrical or operatic purposes, until the same shall have been made to conform to the requirements of this Ordinance. And no building herein described shall be opened to the public for operatic or theatrical purposes until the Board of Public Works shall have approved the same in writing, as conforming to the requirements of this Ordinance, and the Tax Collector shall refuse to issue any license for any performance in any such building until a certificate in writing of such approval shall have been given by said Board of Public Works.

Frontage and Courts.

Section 127. Every such building shall have at least one front on the street, and in such front there shall be suitable means of entrance and exit for the audience. In addition to the aforesaid entrances and exits on the street there shall be reserved for service in case of an emergency an open court or space on the side not bordering on the street, where said building is located on a corner lot, and on both sides of said building where there is but one frontage on the street. The width of such open court or courts shall not be less than seven feet where the seating capacity is not over one thousand people; above one thousand and not more than eighteen hundred people, eight feet in width; and above eighteen hundred people, ten feet in width. Said open court or courts shall begin on a line with or near the proscenium wall and shall extend the length of the auditorium proper, to or near the wall separating the same from the entrance lobby or vestibule. A separate corridor shall continue to the street from each open court, through such superstructure as may be built on the street side of the auditorium, with continuous walls of brick or fireproof materials on each side of the entire length of said corridor or

corridors, and the ceiling and floors shall be fireproof. Said corridor or corridors shall not be reduced in width to more than three feet less than the width of the open court or courts, and there shall be no projection in the same; the outer openings to be provided with doors or gates opening toward the street. During the performance the doors or gates in the corridors shall be kept open by proper fastenings; at other times they may be closed and fastened by movable bolts or locks. The said open courts and corridors shall not be used for storage purposes, or for any purpose whatsoever except for exit and entrance from and to the auditorium and stage, and must be kept free and clear during performances. The level of said corridors and courts shall be graded to the sidewalk and flush therewith at all points at street entrances. The entrance of the main front of the building shall not be on a lower level than the sidewalk, and shall not be on a higher level from the sidewalk than six (6) inches, unless approved by the Department of Public Works. To overcome any differences of level in and between courts, corridors, lobbies, passages and aisles on the ground floor, gradients shall be employed, for not over one foot rise to ten feet horizontal (1-10), with no perpendicular rises.

Exits Into Courts.

Section 128. Opening into said open courts, or on the side street, from the auditorium, there shall be not less than two exits on each side in each tier, from and including the parquet and from each and every gallery. Each exit shall be at least five feet in width in the clear, and provided with doors of iron and wood; if of wood, the doors shall be constructed as described in this Ordinance. All of said doors shall open outwardly and shall be fastened with movable bolts, the bolts to be kept drawn during performances, unless a device satisfactory to the Board of Public Works be applied, so as to keep the same locked from without, but to unlock automatically on the application of pressure from within on a bar forming part of the door. There shall be balconies not less than four feet wide in the said open court or courts, at each level or tier above the parquet, on each side of the auditorium, of sufficient length to embrace the two exits, and from said balconies

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there shall be staircases extending to the ground level, with a rise of not over eight and one-half inches to a step, and not less than nine inches tread, exclusive of the nosing. The staircases from the upper balconies to the next below shall not be less than three feet in width in the clear, and from the first balcony to the ground three feet in width in the clear where the seating capacity of the auditorium is for one thousand people or less; three feet and six inches in the clear where one thousand and not more than eighteen hundred people, and four feet in the clear where over eighteen hundred people, and four feet six inches in the clear where above twenty-five hundred people. Hand rails shall be secured to the walls, three inches therefrom and about three feet above the centers of the treads, and other hand rails shall be placed on the outside of said staircases, about three feet above the centers of the treads, and secured to said staircase so as to resist a pressure of 100 pounds per linear foot, applied horizontally to said rail.

Interior Walls.

Section 129. Interior walls built of fireproof material shall separate the auditorium from the entrance vestibule, and from any room or rooms over the same; also from any lobbies, corridors, refreshment or other rooms. All staircases for the use of the audience shall be enclosed with walls of brick or of fireproof materials approved by the Board of Public Works. The openings to said staircases from each tier shall be full width of said staircases. No door shall open immediately upon a flight of stairs, but a landing at least the width of the door shall be provided between such stairs and such floor.

Construction of Balconies and Stairways.

Section 130. All the before mentioned balconies and stairways shall be constructed of iron throughout, including the floors, and of ample strength to sustain the load to be carried by them, and they shall be covered with a metal hood or awning, to be constructed in such manner as shall be approved by the Board of Public Works. Where one side of the building borders on the street, there shall be balconies and stairways of like capacity and kind, as before mentioned,

carried to the ground. When located on a corner lot, that portion of the premises bordering on the street and not required for the use of the theater may, if such portion be not more than twenty-five feet in width, be used for offices, stores or apartments, provided the walls separating this portion from the theater proper are carried up solidly to and through the roof, and that a fireproof exit is provided for the theater on each tier, equal to the combined width of exits opening on opposite sides in each tier, communicating with balconies and staircases leading to the street in manner provided elsewhere in this section; said exit passages shall be entirely cut off by brick walls from said offices, stores or apartments, and the floors and ceilings in each tier shall be fireproof.

Proscenium Wall.

Section 131. A fire wall shall separate the auditorium from the stage, and the same shall extend at least four feet above the stage roof, or the auditorium roof, if the latter be the higher, and shall be coped. Above the proscenium opening there shall be an iron girder resting upon steel columns to foundations, and of sufficient strength to support safely the load above, and the same shall be covered with fireproof materials to protect it from heat. Should there be constructed an orchestra over the stage, over the proscenium opening, the said orchestra shall be placed on the auditorium side of the fire wall and shall be entered only from the auditorium side of said fire wall. The molded frame around the proscenium opening shall be formed entirely of fireproof materials. If metal be used said metal shall be filled in solid with non-combustible material and securely anchored to the wall with iron. The proscenium opening shall be provided with a fireproof metal curtain of asbestos or other fireproof material, approved by the Board of Public Works, sliding at each end within iron grooves, securely fastened to the brick wall and extending into such iron grooves to a depth of not less than six inches on each side of the opening. Said fireproof curtain shall be raised at the commencement of each performance and lowered at the close of said performance, and be operated by approved machinery for that purpose. The proscenium curtains shall be

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placed at least three feet distant from the footlights of the nearest point. No doorway or opening through the proscenium wall, from the auditorium, shall be allowed above the level of the first floor, and such first floor openings shall have fireproof doors on each face of the walls, and the doors shall be hung so as to be opened from either side at all times.

Ordinary Exits.

Section 132. Every theater accommodating two hundred and fifty persons shall have at least two (2) exits; when accommodating five hundred persons, at least three (3) exits shall be provided; these exits not referring to nor including the exits to the open court at the side of the theater. Doorways of exit or entrance for the use of the public shall be not less than five feet in width, and for every additional one hundred persons or portions thereof to be accommodated in excess of five hundred an aggregate of twenty inches additional exit width must be allowed. All doors of exits or entrances shall open outwardly, and be hung to swing in such manner as not to become an obstruction in a passage or corridor, and no such doors shall be closed or locked during any representation, or when the building is open to the public, unless locked by self-unlocking system. Distinct and separate places of exit and entrance shall be provided for each gallery above the first. A common place of exit and entrance may serve for the main floor of the auditorium and the first gallery, provided its capacity be equal to the aggregate capacity of the outlets from the main floor and the said gallery. No passage leading to any stairway communicating with any entrance or exit shall be less than four feet in width in any part thereof.

Foyers, Lobbies, Etc.

Section 133. The aggregate capacity of the foyers, lobbies, corridors, passages and rooms for the use of the audience, not including aisle space, between seats, shall, on each floor or gallery, be sufficient to contain the entire number to be accommodated on said floor or gallery, in the ratio of one hundred and fifty superficial feet of floor room for every one hundred persons. Gradients or inclined planes shall be employed instead of steps, where possible, to overcome slight dif-

ferences of level in or between the aisles, corridors and passages.

Aisles and Seats.

Section 134. All aisles on the respective floors in the auditorium having seats on both sides of the same shall not be less than three feet wide where they begin, and shall be increased in width toward the exits in ratio of $1\frac{1}{2}$ inches to 5 running feet. Aisles having seats on one side only shall not be less than two feet wide at their beginning and increased in width $1\frac{1}{2}$ inches in 10 running feet. All seats in the auditorium, excepting those contained in boxes, shall not be less than thirty-two inches from back to back, measured in a horizontal direction, and firmly secured to the floor. No seat in the auditorium shall have more than six seats intervening between it and an aisle. No stool nor seat shall be placed in any aisle. All platforms in galleries formed to receive the seats shall be not more than twenty-one inches in height of rises nor less than thirty-two inches in width of platform. The maximum number of movable seats or chairs in boxes shall be eight. In boxes containing a greater number of seats the seats shall be fastened to the floor.

Gallery Fronts, Partitions, and Ceilings.

Section 135. The fronts of each gallery shall be formed of fireproof materials, except the capping, which may be made of wood. The ceiling under each gallery shall be entirely formed of fireproof materials. The ceilings of the auditorium shall be formed of fireproof materials. All lathing, whenever used, shall be of metal. The partitions in that portion of the building which contains the auditorium, the entrance and vestibule and every room and passage devoted to the use of the audience shall be constructed of fireproof materials, including the furring of outside or other walls. None of the walls or ceiling shall be covered with wood sheathing, canvas or any other combustible material. But this shall not exclude the use of wood wainscoting to a height not to exceed six feet, which shall be filled in solid between the wainscoting and the wall, with fireproof materials.

Inside Stairways.

Section 136. All stairs within the

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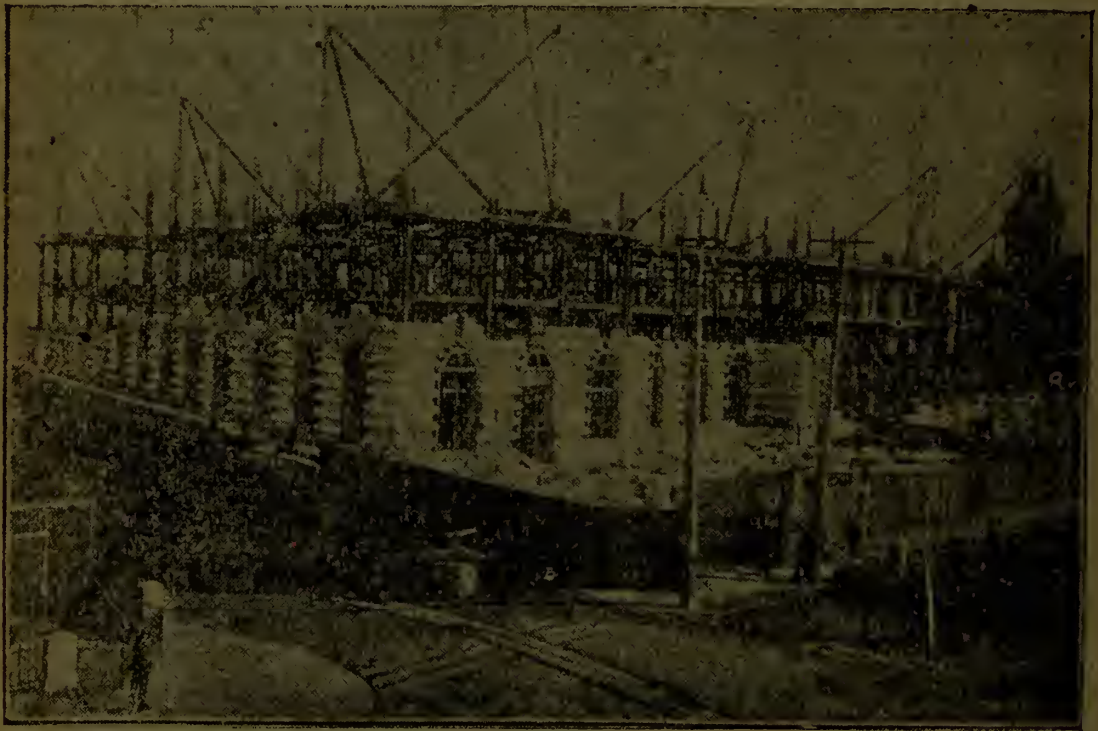
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buildings shall be constructed of fireproof materials throughout. Stairs from balconies and galleries shall not communicate with the basement or cellar. All stairs shall have treads, of uniform width and risers of uniform height throughout in each flight. Stairways serving for the exit of fifty people shall be at least four feet wide between railings, or between walls, and for every additional fifty people to be accommodated, six inches must be added to their width. The width of all stairs shall be measured in the clear between hand rails. In no case shall the risers of any stairs exceed $7\frac{1}{2}$ inches height, nor shall the treads, exclusive of nosings, be less than $10\frac{1}{2}$ inches wide in straight stairs. No circular or winding stairs for the use of the public shall be permitted. Where the seating capacity is for more than one thousand people, there shall be at least two independent staircases, with direct exterior outlets provided for each gallery in the auditorium, where there are not more than two galleries, and the same shall be located on opposite sides of said galleries. Where there are more than two galleries, one or more additional staircases shall be provided, the outlets from which shall communicate directly with the principal exit or other exterior outlets. All said staircases shall be of width proportionate to the seating capacity as elsewhere herein prescribed.

Where the seating capacity is for one thousand people or less, two direct lines of staircases only shall be required, located on opposite sides of the galleries, and in both cases shall extend from the sidewalk level to the upper gallery, with outlets from each gallery to each of said staircases.

At least two independent stairways, with direct exterior outlets, shall also be provided for the service of the stage, and shall be located on the opposite sides of the same.

All inside stairways leading to the upper galleries of the auditorium shall be enclosed on both sides with walls of fireproof materials. Stairs leading to the first or lower gallery may be left open on one side, in which case they shall be constructed as herein provided for similar stairs leading from the entrance hall to the main floor of the auditorium. But in no case shall stairs leading to any gallery be left open on both sides.

When straight stairs return directly on themselves, a landing of the full width of both flights, without any steps shall be provided. The outline of the landings shall be curved to a radius of not less than two feet, to avoid square angles. Stairs turning at an angle shall have a proper landing without winders introduced at said turn. In stairs, when two flights connect with one main flight, no winders shall be introduced, and the width of the main flight shall be at least equal to the aggregate width of the side flights. All stairs shall have proper landings introduced at convenient distances. All enclosed staircases shall have on both sides, strong hand rails firmly secured to the walls, about three inches distant therefrom and about three feet above the stairs, but said hand rails shall not run on level platforms and landings where the same is more in length than the width of the stairs. All stair cases eight feet and over in width shall be provided with a center hand rail of metal, not less than two inches in diameter, placed at a height of about three feet above the center of the treads, and supported on wrought metal or brass standards, of sufficient strength, placed not nearer than four feet, nor more than six feet apart, and securely bolted to the treads or risers of stairs, or both, and at the head of each flight of stairs, on each landing, the posts or standards shall be at least six feet in height, to which the rail shall be secured.

Roof and Floors.

Section 137. The roof over the auditorium and the entire main floor of the auditorium and vestibule, also the entire floor of the second story of the front superstructure over the entrance, lobby and corridors, and all galleries and supports for the same in the auditorium, shall be constructed of iron or steel, or fireproof materials, not excluding the use of wood floor boards and necessary sleepers to fasten the same to; but such sleepers shall not mean timbers of support, and the space between the sleepers, excepting the portion under the stepping in the galleries, which shall be properly firestopped, shall be solidly filled with non-combustible material up to the under side of the floor boards. All roof trusses shall be supported by steel columns extending to the foundations.

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Partitions.

Section 138. The walls, separating the actors' dressing room from the stage, and the partitions dividing the dressing rooms, together with the partitions of every passage way from the same to the stage, and all other partitions on or about the stage, shall be constructed of fireproof material, approved by the Board of Public Works. All doors in any of said partitions shall be of fireproof.

Dressing Rooms.

All shelving and cupboards in each and every dressing room, property room, or other storage room shall be constructed of metal, slate or some fireproof material. Dressing rooms may be placed in the fly galleries, provided that proper exits are secured therefrom to the fire escapes in the open courts, and that the partitions and other matters pertaining to dressing rooms shall conform to the requirements herein contained, but the stairs leading to the same shall be fire proof. The dressing rooms shall have an independent exit leading directly into a court or street, and shall be ventilated by windows in the external wall, and no dressing room shall be more than 10 feet below street level.

Windows.

All windows shall be arranged to open, and none of the windows in outside walls shall have fixed sashes, iron grills or bars.

Stage Floor.

Section 139. All that portion of the stage not comprised in the working of scenery, traps and other mechanical apparatus, for the presentation of a scene, usually equal to the width of the proscenium opening, shall be built of iron or steel beams, filled in between with fireproof materials, and all girders for the support of said beams shall be wrought iron or rolled steel.

Fly Galleries.

Section 140. The fly galleries entire, including pin rails, shall be constructed of iron or steel, and the floors of said galleries shall be composed of iron or steel beams filled with fireproof materials, and no wood boards nor sleepers shall be used as coverings over beams, but the said floor shall be entirely fireproof. The

rigging loft shall be fireproof. All stage scenery, curtains and decorations made of combustible material shall be painted or saturated with some approved non-combustible material, or otherwise rendered safe against fire, and the finishing coats of paint applied to all woodwork shall be of such kind as to resist fire, to the satisfaction of the Board of Public Works.

Fireproof wood may be used, if satisfactory to the Board of Public Works.

Fly galleries shall rest upon columns extending to the basement.

Fire Protection.

Section 141. Standpipes, four inches in diameter, shall be provided with hose attachments on every floor and gallery, as follows, namely, one on each side of the auditorium in each tier, also two on each side of the stage, and each tier, and at least one in the property room and one in the carpenter shop, if the same be contiguous to the building. All such standpipes shall be kept clear from obstruction. Said standpipes shall be separate and distinct, receiving their supply of water direct from the power or pump or pumps, and shall be fitted with the regulation couplings of the Fire Department, and shall be kept constantly filled with water by means of an automatic fire pump or pumps, of sufficient capacity to supply all the lines of hose when operated simultaneously, and said pump or pumps shall be supplied from the street main and be ready for immediate use at all times during a performance in said building. In addition to the requirements contained in this section there shall be provided a four-inch standpipe, running from cellar to roof, with one two-way three-inch Siamese connection to be placed on street above the curb level, and with one two and one-half inch outlet, with hose attached thereto on each floor, placed as near the stairs as practicable, and all buildings now erected, unless already provided with a three-inch or large vertical pipe, or hereafter to be erected, exceeding one hundred and fifty feet in height, shall be provided with an auxiliary fire apparatus and appliances consisting of water tank on roof or in cellar, standpipes, hose nozzles, wrenches, fire extinguishes, hooks, axes and other appliances, as may be required by the Fire Depart-

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ment, all to be of the best material and of the sizes, pattern and regulation kinds used and required by the Fire Department. A separate and distinct system of automatic sprinklers, with fusible plugs, approved by the Board of Public Works, supplied with water from a tank located on the roof over the stage, and not connected in any manner with standpipes, shall be placed on each side of the proscenium opening and on the ceiling or roof over the stage at such intervals as will protect every square foot of stage surface when said sprinklers are in operation. Automatic sprinklers shall also be placed wherever practicable, in the dressing rooms, under the stage, and in the carpenter shop, paint rooms, store rooms and property rooms.

A proper and sufficient quantity of two and one-half inch hose, not less than one hundred feet in length, fitted with the regulation couplings of the Fire Department and with nozzles attached thereto, and with hose spanners at each outlet, shall always be kept attached to each hose attachment, as the Fire Commissioners may direct. There shall also be kept in readiness for immediate use on the stage at least four casks of water, and two buckets to each cask. The casks and buckets shall be painted red. There shall also be provided hand pumps or other portable fire extinguishing apparatus, and at least four axes, and also twenty five-foot hooks, two fifteen-foot hooks and two ten-foot hooks on each tier or floor of the stage. Every portion of the building devoted to the uses of the accommodations of the public, also all outlets leading to the streets and including the open courts and corridors, shall be well and properly lighted with electricity during every performance, and the same shall remain lighted until the entire audience has left the premises. All of said lights in the halls, corridors, lobbies and any other part of said building used by the audience, except the auditorium, must be controlled by a separate shut-off located in the lobby and controlled only in that particular place. Gas mains supplying the building shall have independent connections for the work shops, fly galleries and stage, and provision shall be made for shutting off the gas from the outside of the building.

All lights in passages and corridors in said building whenever deemed necessary by the Board of Public Works shall be protected with proper wire network. All border lights shall be constructed according to the best known methods and subject to the approval of the Board of Public Works, and shall be suspended for ten feet by wire rope. All ducts or shafts used for conducting heated air from the main chandelier, or from any other light or lights, shall be constructed of metal and made double, with an air space between.

Fire Department Control Fire Apparatus.

The stand-pipes, gas pipes, electric wires, hose footlights and all apparatus for the extinguishing of fire, or guarding against the same, as in this direction specified, shall be in charge and under the control of the Fire Department; and said department is hereby directed to see that the arrangements in respect thereto are carried out and enforced.

Diagram of Theater on Programme.

A diagram or plan of each theater, gallery or floor, showing distinctly the exits therefrom, each occupying a space not less than fifteen square inches, shall be printed in black lines in a legible manner on the programme of the performance.

Signs at Exits.

Every exit shall have over the same, on the inside, the word "Exit," painted in legible letters, not less than eight inches high; over each such exit there shall also be a red light on an independent circuit from all other lights in the building.

Ventilation of Stage.

Section 142. There shall be provided over the stage, and in direct and open connection with the ceiling thereof, two metal flues, not less than 36 inches in diameter, and extending 10 feet above the roof, and securely stayed. The tops of these flues shall be closed with an overbalanced metal disc, hinged to one side thereof, and held closed, or nearly so, by a metal gallery, marked "To Venilate Stage and Clear of Smoke, Pull This Cord." Also from the box office, by a lever, marked "To Ventilate Stage and Clear of Smoke, Push This Lever to the Right."

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Steam Boilers and Heating Appliances.

Every steam boiler which may be required for heating or other purposes shall be located outside the building, and the space allotted to the same shall be enclosed by walls of masonry on all sides, and the floor and ceiling of such space shall be constructed of fireproof material.

All doorways in said walls shall have fireproof doors. No floor register for heating shall be permitted. No coil or radiator shall be placed in any aisle or passage way used as an exit, but all said coils and radiators shall be placed in recesses formed in the wall, or partitioned to receive the same. All supply, return or exhaust pipes shall be properly encased and protected where passing through floors or near woodwork.

Work Shop, Storage Room, Property Rooms.

Section 143. No work shop, storage or general property rooms shall be allowed on the auditorium side of the proscenium wall, nor above nor under the stage, nor in any of the fly galleries. All of said rooms or shops may be located in the rear or at the side of the stage, but in such cases they shall be separated from the stage by a brick wall and the openings leading into such portions shall have fireproof doors on each side of the openings, hung to iron eyes built in the wall.

Restrictions as to Use of Building.

No portion of any building hereafter erected or altered, used or intended to be used for theatrical or other purposes, as in this section specified, shall be occupied or used as a hotel, boarding or lodging house, factory, work shop or manufactory, or for storage purposes, except as may hereafter be specially provided for. Said restriction relates not only to that portion of the building which contains the auditorium and the stage, but applies also to the entire structure in conjunction therewith. No store or room contained in the building, nor the offices, stores or apartments adjoining, as aforesaid, shall be let or used for carrying on any business dealing in articles designated as especially hazardous in the classification of the San Francisco Board of Fire Underwriters, nor for manufacturing purposes. No lodging accommodations shall be allowed in any part of the building communicating with auditorium.

Lights at Exits.

Section 144. At each and every exit in any theater or opera house there shall be placed and maintained a lamp in which only mineral, sperm, nut or other non-inflammable oil, or electricity upon an independent circuit, satisfactory to the Board of Public Works and the Board of Fire Wardens, shall be used; and said lamp or lamps shall be lighted prior to the opening of the doors of such theater or opera house, and shall be kept lighted until the audience shall have departed from the premises; and there shall be inscribed upon said lamp or lamps the word "Exit" in distinctly visible letters, not less than eight (8) inches high. All existing theaters or opera houses shall be made to comply with the provisions of this Ordinance under the direction and supervision of the Board of Public Works and Fire Wardens, to such extent as may be deemed necessary and practicable by said Boards.

Right of Entry by Authorities.

The Mayor, the members of the Board of Supervisors, the Commissioners of the Board of Public Works, the Architect and the Inspectors of Buildings of the Department of Public Works, the Commissioners of the Fire Department and of the Police Department shall have the right to enter at any time any building used for theatrical or operatic purposes or for public entertainments of any kind.

PART VIII.**PROVISIONS RELATING TO CONSTRUCTION OF CLASS "B" BUILDINGS.—EXPLANATION.**

Section 145. In this class of buildings is included the following methods of construction, which shall be entirely of incombustible materials.

Construction.

Section 146. The interior floor loads shall be carried on a frame made of steel or cast iron columns and steel floor beams and girders, or upon a frame of reinforced concrete made up of columns, girders and beams. The walls may be proportioned to carry the adjacent floor load or may be self-supporting only, the floors being carried by steel or reinforced concrete wall columns. Walls shall be built of brick or reinforced concrete.

Loads.

Section 147. Class "B" buildings

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shall be designed to carry the loads specified for Class "A" buildings, and in the same manner.

Foundations.

Section 148. The foundation of buildings of Class "B" shall be of the form of construction as provided for buildings of Class "A," as far as applicable.

Steel Frame.

Section 149. When a steel frame is used, it shall be constructed as provided in Section 66 of this Ordinance, for unit stresses.

Columns.

Section 150. Columns shall be of steel or cast iron. If of steel they shall be similar to the steel columns in Class "A" buildings.

Cast Iron Columns.

Section 151. Columns of cast iron shall be of round or rectangular section, but no columns shall be used less than 5 inches diameter, or of side of rectangle less than 5 inches, nor of thickness of metal less than three-quarters of an inch. No cast iron column shall have an unsupported length of more than twenty times its least lateral dimension or diameter except when forming the side of a staircase or elevator enclosure. No cast iron column shall be subjected to a greater stress per square inch than

$$\frac{8000}{1 + \frac{L^2}{800d^2}}$$

for round columns, where L is the length and d is the outside diameter in inches; and

$$\frac{8000}{1 + \frac{L^2}{1067 S^2}}$$

where L is the length and s is the least side of the rectangle in inches for rectangular columns.

The top and bottom flanges, seats and lugs shall be of ample strength, reinforced by fillets and brackets; they shall not be less than one inch in thickness when finished.

The interior space of cast-iron columns shall be in no case filled with any material.

All columns shall be faced at the ends to a plane surface at right angles to the axis of the column.

Where cast iron columns are placed vertically one on top of another, they shall be securely bolted together at the joints through flanges cast on the columns and a plate between the flanges. If the column is square or rectangular, the top flange shall project not less than two and one-half inches from the outer surfaces of the column on all sides, and the bottom flange of the column immediately above the same shall project as far as the top flange of the column below. If the column is round or many-sided, the top flange shall project not less than two and one-half inches at its least projection from the outer surface of the column, and be square or rectangular in shape, and the bottom flange of the column immediately above the same shall be of corresponding shape and project as far as the top flange of the column below. Each flange will be reinforced with a bracket placed centrally on the column, and with fillets both on the bracket and flange. In case the column is placed on the dividing line of the lot upon which the building is to be erected, the flanges on that side only may be omitted.

Joint Plates.

Section 152. Between the point of cast iron columns placed vertically over each other there shall be in each case a solid cast-iron plate, not less than one and one-quarter of an inch in thickness, of the same dimensions as the flanges of the columns, and planed true on both sides, or a plate of mild steel not less than five-eighths of an inch in thickness may be used instead of the cast-iron plate when columns are not of the same external diameter or cross-section. When columns, however, are of the same external diameter or cross-section, the said joint plates may be omitted. The columns shall be bolted together with bolts not less than three-quarters of an inch in diameter, passing through the two flanges and the intermediate plate (if an intermediate or joint plate be used), the bolts being of sufficient length to allow the nuts to be screwed up tightly, and as each column is placed in position the bolts shall also be placed in position and the nuts shall be tightly screwed up.

Number of Bolts.

One bolt shall be placed at each corner of the plate and flanges, and the number of bolts shall be never less

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than four. The holes for these bolts shall be drilled to a template.

Increase in Size of Columns.

Section 153. Where cast-iron columns are placed vertically, one on top of the others, the diameters shall be increased not less than one inch for each two stories below the columns on the two stories above the case of round columns, and in the case of square or rectangular columns the same ratio of increase shall follow on at least two sides of the columns in each two stories below the uppermost two columns of the vertical line. This increase in size shall apply to interior as well as to exterior columns.

Columns of Varying Diameters.

Section 154. The core of a column below a joint shall be not larger than the core of the column above, and the metal shall be tapered down for a distance of not less than six inches. **Thickness of Shell Proportionate to**

Diameter of Column.

Section 155. The thickness of metal shall not be less than one-twelfth the diameter of the greatest lateral dimension of cross-section, but never less than three-quarters of an inch.

When Thickness Is Not Equal.

Section 156. Wherever the core of cast-iron column has shifted more than one-fourth the thickness of the shell, the strength shall be computed assuming the thickness of metal all around equal to the thinnest part, and the columns shall be condemned and rejected if this computation shows the strength to be less than required by this code.

Imperfections in Casting.

Section 157. Wherever blowholes or imperfections are found in a cast-iron column which reduces the area of the cross-section at that point more than ten per cent., such column shall be condemned and rejected.

Drill Test.

Section 158. Cast-iron posts or columns not cast with one open side or back, before being set up in place shall have a three-eighths of an inch hole drilled in the shaft of each post or column, by the manufacturer or contractor furnishing the same, to exhibit the thickness of the castings; and any other hole or holes of a similar size which the Inspector of Buildings may require shall be drilled in

the said posts or columns by the said manufacturer or contractor, at their expense.

Shoes Under Bottom Tier of Columns.

Section 159. Iron or steel shoes or plates shall be used under the bottom tier of columns when necessary to properly distribute the load on the foundation. Shoes shall be planed on top.

Girders and Beams.

Section 160. Floors shall be framed of steel girders and beams, or of steel girders and reinforced concrete beams (if a steel frame be used—the term steel frame here includes cast-iron columns). If reinforced concrete beams be used the columns shall be connected by steel girders and beams not less than 8 inches deep.

All steel shall be riveted. Beams and girders shall be connected by standard brackets. Girders and beams connecting to cast-iron columns shall have the webs fastened to lugs cast on the column by bolts at least three-fourths of an inch in diameter. There shall be one such bolt for 3 inches, 4 inches, 5 inches and 6 inches channels and beams, two bolts for 7 inches, 8 inches, 9 inches and 9 inch channels and beams, three bolts in 12 inches and 15 inch channels and beams, four bolts in 18 inches beams, and five bolts in 20 inch and 24 inch beams. All columns shall be connected to each other and to the walls at each floor by girders or beams not less than 8 inches deep, in such manner that columns shall be connected into a rigid frame.

Wind Bracing.

Section 161. In building over eighty feet high or where the height exceeds two times the least horizontal dimension, the building shall be braced to resist wind-pressure, as provided in Section 69 of Class "A" buildings.

Miscellaneous.

Section 162. The provisions of Sections 73, 74, 75, 76 and 77 of this Ordinance shall apply to the construction of the steel frame.

Fireproofing.

Section 162A. The provision of Sections Nos. 92, 93, 94, 95, 96, 97 and 98 of this Ordinance, relative to fireproofing of Class "A" buildings shall also apply to the fireproofing of Class "B" buildings.

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Reinforced Concrete Frame.

Section 163. Buildings of Class "B" may be constructed with a frame of columns, girders, beams, walls and floors of reinforced concrete. Provision may also be made for reinforced concrete beams in a steel frame, as provided in Section 90 of this Ordinance.

Reinforced Concrete.

Section 164. All reinforced concrete shall be constructed in accordance with the following provisions:

The term, "reinforced concrete," as used in this ordinance shall be understood to mean an approved concrete mixture reinforced by steel of any shape, so combined, that the steel will take up the tensional strain and assist in the resistance to shear.

Stress.

Section 165. Reinforced concrete construction shall be of such nature that the stresses can be calculated according to the accepted formulas of modern concrete engineering practice.

Concrete—Mixing of; Method of Testing.

Section 166. The concrete shall be mixed in the proportions of not less than one of cement to six of aggregates, consisting of sand and gravel or broken stone of 1 inch major dimensions. The proportions shall be such that the resistance of the concrete to crushing shall not be less than two thousand pounds per square inch after hardening for twenty-eight days. The tests to determine this value shall be made by a competent engineer under the direction of the Board of Public Works. The concrete used in reinforced concrete construction shall be what is usually known as a wet mixture.

Steel.

Section 167. All steel with an elastic limit exceeding 40,000 pounds shall have a mechanical bond with the concrete.

Reinforcing—Method of.

Section 168. All reinforcing steel shall be completely enclosed by the concrete, and such steel shall be nowhere nearer to the surface than one and one half times the diameter of such reinforcing steel bar or rod or other shape, but never less than one inch. The steel in beams or girders shall be so disposed that there shall

be not less than one and one-half times the thickness of the steel in concrete between the steel, and where the number of bars used cannot be placed in one plane they shall be placed in two or more planes.

Reinforced concrete shall be so designed that the stresses in concrete and the steel shall not exceed the following limits: Extreme fibre stress on concrete in compression, five hundred pounds per square inch; shearing stress in concrete, seventy-five pounds per square inch; concrete in direct compression, four hundred and fifty pounds per square inch; concrete in spirally wound columns, seven hundred pounds per square inch; tensile stress in steel, one-third of the elastic limit; shearing stress in steel, ten thousand pounds per square inch.

The adhesion of concrete to steel shall be assumed to be seventy-five pounds per square inch of surface where bars are three-quarters of an inch or less in diameter, and proportionately less in bars of a diameter greater than three-quarters of an inch.

The ratio of the moduli of elasticity of concrete and steel shall be taken as one to fifteen.

The following assumption shall guide in the determination of the bending moments due to external forces: Beams and girders shall be considered as simply supported at the ends, no allowance being made for continuous construction over supports. Floor plates, when constructed continuous and when provided with reinforcement at the top of plate over the supports, may be treated as continuous beams, the bending moment for uniformly distributed loads being taken as not less than $W L$ divided by twelve; the bending moment may be taken at $W L$ divided by twenty in the case of square floor plates which are reinforced in both directions and supported on all sides. The floor plate to the extent of not more than five times its depth, may be taken as part of that beam or girder in computing its moment of resistance and the beam and slab must be built at the same time as a unit.

W —the total load.

L —the distance between centers of support.

The moment of resistance of any reinforced concrete construction under transverse loads shall be determined

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by formulas based on the following assumptions:

(a) The bond between the concrete and steel is sufficient to make the two materials act together as a homogeneous solid.

(b) The strain in any fibre is directly proportionate to the distance of that fibre from the neutral axis.

(c) The modulus of elasticity of the concrete remains constant within the limits of the working stresses fixed in this ordinance.

The dimensions of such a beam or girder and its reinforcement shall be determined and fixed in such a way that the strength of the metal in tension shall measure the strength of the beam or girder. If the concrete in compression, including the allowable concrete in adjoining floor construction, does not afford sufficient strength for that purpose, the compression side of the beam or girder in question shall also be reinforced with metal.

All beams or girders shall be reinforced with metal if necessary for shear. Other reactions, if necessary, shall likewise be reinforced.

Neither the reinforcing metal nor the concrete shall be subjected to combined stresses so as to exceed in combination the stresses allowable separately.

Wherever possible, beams and girders and also their intermediate floor construction shall be made continuous. Reinforcing metal shall be used for that purpose in the top of all connecting members at the point of support, and it shall be sufficient both in section and length to prevent fracture at the point of support where the connecting members are carrying twice their calculated loads.

The reinforcing metal in the bottom of a floor slab may be deflected to the top of the slab along the line of support, or separate reinforcing material may be used for the reinforcement in the top of the slab. In either case, however, if a part of the slab is considered as a part of the beam or girder, the reinforcing material used in the slab must cross the full width both of the beam or girder and the part of slab so considered.

The centering for the beams and girders of a floor shall be constructed in conjunction with the centering for the floor slabs which they support, and no centering shall be removed until all parts of the finished floors

are strong enough to support themselves and the loads that may come upon them during construction.

Shear: Reinforced Concrete.

Section 169... Reinforced concrete construction shall be designed so that the shearing stresses, both vertical and horizontal, developed in any part of the construction, shall not exceed the safe working strength of the concrete as fixed in this ordinance, or a sufficient amount of steel shall be introduced in such a position that the deficiency in the resistance to shear is overcome. This reinforcement to be part of or rigidly connected to the main horizontal tension bars.

When the safe limit of adhesion between the concrete and steel is exceeded, some provision shall be made for transmitting the strength of the steel to the concrete.

Columns: Reinforced Concrete.

Section 170. Reinforced concrete may be used for columns when the ratio of length to least side or diameter does not exceed fifteen. The reinforcing rods shall be tied together at intervals of not more than the least side or diameter of the column, or spirally wound steel may be used. No column shall be built less than 10 inches diameter.

When vertical reinforcement is used in columns, such as rods, they shall have full perfect bearings at each joint, and such joints shall occur only at floors or other points of lateral support and a tight fitting sleeve shall be provided at all joints of vertical reinforcing rods.

The concrete shall cover the reinforcing bars at all points at least one and one-half inch, and in calculating the strength of a reinforced concrete column this outside one inch of concrete shall not be counted as a part of the section of a column.

The axes of several columns acting continuously through two or more stories shall accurately coincide, and the constructure shall make special provision to effect this result.

Wind Pressure.

Section 171. In the case of buildings in which allowance must be made for wind pressure as provided in this Ordinance, the reinforcing rods of columns shall be connected by threading the rods and by threaded sleeve nuts, or threaded turnbuckles, or

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Tests—To Be Made by Contractor on Demand.

Section 172. The contractor shall be prepared to make load tests on any portion of reinforced concrete structure within a reasonable time after erection, as may be required by the Inspector of Buildings. Such tests shall show that the construction will sustain a load of twice that for which it is designed, without any sign of failure, or, in the case of beams, girders or floors, without deflecting more than one seven-hundredth of a span.

Walls.

Section 173. Walls of Class "B" buildings shall be built of brick, stone, concrete or reinforced concrete.

Reinforced Concrete Walls.

Section 174. Buildings of Classes "A" and "B" having a complete skeleton construction of steel or of reinforced concrete construction or a combination of both, designed to safely resist all of the strains caused by the dead weights of the structure and of the live loads and of the wind pressure within the safe limits of stress provided in this Ordinance for each material used, may have reinforced

concrete walls as specified for Class "A" buildings.

Brick Walls.

Section 175. Brick walls may be built supporting a portion of the floor in addition to their own weight, or self-supporting only, in which latter case columns shall be built in the wall to carry floor loads. Self-supporting walls shall be known as curtain walls. Where walls support floor loads, the center of no columns supporting floors shall be at a greater distance than twenty-four feet from the wall. No chases shall be cut in any walls more than one foot wide.

Curtain Walls.

Section 176. Curtain walls built in between piers or iron or steel columns, and not supported on steel or iron girders, shall be not less than thirteen (13) inches thick for forty (40) feet of the uppermost height thereof, or to the tier of beams nearest to that height and they shall be increased four (4) inches for every additional section of forty (40) feet, or to the tier of beams nearest to that height, and they shall not be used as bearing walls.

Section 177. Exterior, party, division and bearing walls, except as provided for in Sections 174, 175, 176 and 184, shall be built of thickness given in the following table:

	First Base- ment.	Second story, 18 ft.	Third story, 31 ft.	Fourth story, 44 ft.	Fifth story, 57 ft.	Sixth story, 70 ft.	Seventh story, 83 ft.	Eighth story, 95 ft.
One-story bldg....	17 in.	13 in.						
Two-story bldg....	17 in.	17 in.	13 in.					
Three-story bldg...	21 in.	17 in.	17 in.	13 in.				
Four-story bldg....	21 in.	17 in.	17 in.	17 in.	13 in.			
Five-story bldg....	25 in.	21 in.	17 in.	17 in.	17 in.	13 in.		
Six-story bldg....	25 in.	21 in.	21 in.	17 in.	17 in.	17 in.	13 in.	
Seven-story bldg...	29 in.	25 in.	21 in.	21 in.	17 in.	17 in.	17 in.	13 in.

If any story exceeds in height the number of feet prescribed in the table, the thickness of each external and party wall throughout such story shall be increased four (4) inches for every five (5) feet or fraction thereof, in excess of the tabulated height.

The exterior walls of brick, stone or concrete buildings shall be the front, rear and side and court walls, and such walls shall extend from the foundation to the top of such buildings.

Facing.

Section 178. In walls laid with facing bricks of different thickness than the main part of the wall, or with a stone ashlar facing, the thickness provided shall be exclusive of such facing brick or stone ashlar, unless the facing be at least 8 inches thick and bonded into the wall.

Openings in Walls.

Section 179. No openings for windows shall be made in curtain walls. Where openings are made for windows or doors in walls carrying floor

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loads or in the fronts of buildings the walls shall be proportioned as piers with allowed pressures of 112 pounds per square inch, if laid in cement lime mortar, and of 140 pounds per square inch if laid in cement mortar.

Walls, Tied, Anchored and Braced.

Section 180. In no case shall any wall or walls of any building be carried up more than two (2) stories in ried up more than two (2) stories in advance of any other wall, except by permission of the Board of Public Works. The front, rear, side and party walls shall be properly bonded together, or they shall be anchored to each other, every six (6) feet in their height by wrought-iron tie anchors not less than one and one-half ($1\frac{1}{2}$) by three-eighths ($\frac{3}{8}$) of an inch in size and not less than twenty-four (24) inches in length. The side anchors shall be built into the side or party walls not less than sixteen (16) inches, and into the front and rear walls, so as to secure front and rear walls to the side or party walls, when not built and bonded together. All exterior piers shall be anchored to the beams or girders on the level of each tier.

Laying Brick.

Section 181. All brick walls shall be laid in cement lime mortar or in cement mortar. The walls and piers of all buildings shall be properly and solidly bonded together with close joints filled with cement or cement lime mortar. They shall be built to a line and be carried up plumb and straight. The walls of each story shall be built up of the thickness specified to the top of the beams above.

All bricks shall be well wetted before being laid. In all brick walls every sixth course shall be a header course.

Ashlar Facing.

Section 182. Ashler facing shall be laid in accordance with Section 83 of this Ordinance.

Arches and Lintels.

Section 182A. Openings for doors and windows in all brick or stone buildings shall have good and sufficient arches of stone, brick or terra cotta, well built and keyed, and with good and sufficient abutments; or the openings shall have lintels of stone, iron or steel of sufficient strength, which shall have a bearing at each end of not less than five (5) inches on

the wall. On the inside of all openings in which lintels shall be less than the thickness of the wall to be supported, there shall be timber lintels, which shall rest at each end not more than three (3) inches on any wall, and shall have a suitable arch turned over the timber lintels. Or, the inside lintels may be of cast-iron, wrought iron or steel, and in such case stone blocks or cast-iron or steel plates shall not be required at the ends where the lintel rests on the walls, provided the opening is not more than six (6) feet in width.

All masonry arches shall be capable of sustaining the weight and pressure which they are designed to carry. Tie rods shall be used where necessary to secure stability.

Concrete Walls.

Section 183. Walls built of concrete without reinforcement shall be of the same thickness and under the same conditions as brick walls.

Reinforced Concrete Piers.

Section 184. Reinforced concrete shall be built in the form of piers with connecting walls not less than 6 inches in thickness between, or as a bearing wall or uniform section, and of same thickness required for brick walls.

If walls are built of piers and connecting walls, the piers shall be calculated and constructed as columns. The connecting wall, if built without windows, may be considered as self-supporting, in which case the thickness shall be 6 inches in the upper 40 feet, followed by an increase of three inches in thickness for every additional 40 feet height.

Where such walls are pierced by openings for doors and windows, the entire loads shall be concentrated on the piers, which shall be proportioned as columns.

Floors, Roofs, Partitions and Ceilings.

Section 185. Floors, roofs, partitions and ceilings shall be constructed as provided for Class "A" buildings in Sections 85 to 102 inclusive.

Miscellaneous.

Tanks.

Section 186. Tanks on roofs of buildings shall be of metal and shall rest upon frame or upon the walls, if they be bearing walls. A frame of steel beams shall be provided for supports. A 4-inch outlet shall be placed in the bottom of tank and provided with valve, with wheel or lever operating mechanism.

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Vent and Light Shafts.

Section 187. Vents and light shafts shall be constructed in accordance with Section 104 of this Ordinance, relating to Class "A" buildings.

Elevator House.

Section 188. Elevator houses shall be constructed in accordance with Section 105 of this Ordinance, relating to Class "A" buildings.

Fireplaces and Flues.

Section 189. Fireplaces and flues shall be constructed in accordance with Section 106 of this Ordinance, relating to Class "A" buildings.

Smoke Stacks.

Section 190. Smoke stacks shall be constructed in accordance with Section 107 of this Ordinance, relating to Class "A" buildings.

Skylights.

Section 191. Skylights shall be constructed in accordance with Sections 108, 291 and 292 of this Ordinance.

Floor and Sidewalk Lights.

Section 191A. Floor and sidewalk lights shall be constructed in accordance with the requirements of Sections 109, 297 and 315 of this Ordinance.

Cornices, Gutters and Leaders.

Section 192. Cornices, gutters and leaders shall be constructed in accordance with Sections 110 and 293 of this Ordinance.

Elevators.

Section 193. Elevators shall be constructed in accordance with Sections 111 and 301 to 309 inclusive of this Ordinance.

Stairs.

Section 194. Stairs shall be constructed in accordance with Section 112 of this Ordinance, relating to Class "A" buildings.

Stand Pipes for Hose Reels.

Section 195. Stand pipes for hose reels shall be constructed in accordance with Section 113 of this Ordinance, relating to Class "A" buildings.

PART IX.**Provisions Relating to Construction of Class "C" Buildings.**

Section 196. Class "C" buildings shall be built with brick, stone or concrete walls supporting the adjacent

floor loads and with the interior floor loads supported by studded partitions, or by wooden or steel or cast-iron columns and wooden or steel girders. Floor-joists may be of wood. The limit of height shall be 84 feet; if metal lath be used on all floor and ceiling joists, girders, studding, wood furring and soffits or stalls; and the limit of height shall be 55 feet if wooden lath be used, or if not lathed.

Foundations.

Section 197. The provisions of Sections 55, 56, 57, 58, 59, 60, 61, 62, 63, 64 and 65, included under Class "A" buildings, shall apply to Class "C" construction in so far as applicable.

Foundations for Timber Columns.

Section 198. The foundations of timber columns shall be of concrete or brick, but a distributory grillage of planks or beams may be used. Carrying stud partitions shall have a continuous foundation wall of brick, stone or concrete under same.

Loads.

Section 199. Class "C" buildings shall be designed to carry the loads specified in Sections 50 to 54, inclusive, of Class "A" buildings and in the same manner except that if studded partitions be used to support the loads, the full live load shall be calculated thereon.

Inside Framing.

Section 200. Inside loads shall be supported upon a framing of steel columns, girders and wood joists, or upon cast-iron columns, steel girders and wood joists or upon steel or cast-iron columns, wooden girders and wooden joists or upon wooden columns, girders and joists, or studded partitions with wooden joists.

Metal Frame.

Section 201. If a metal frame consisting of steel or cast-iron columns be used, it shall be framed as permitted in Sections 149 to 161, inclusive, relating to the construction of Class "B" buildings and as provided in Sections 66 to 76, inclusive, relating to the construction of Class "A" buildings.

Connecting Beams and Girders.

Section 202. All steel or cast-iron columns shall be connected to each other and to the walls at each floor by steel girders or beams not less than 8 inches deep.

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Timber Columns.

Section 203. If a timber frame consisting of timber columns, timber girders and joists be used, the columns shall be squared at right angles to their axis. To prevent the unit stresses from exceeding those provided in Section 34 of this Ordinance, timber or iron cap and base-plates shall be provided in buildings over two stories high.

Distance Between Walls.

Section 204. In all brick, stone or concrete buildings over twenty-five (25) feet in width, if there are no brick partition walls or girders supported on iron or wooden columns, or piers of masonry, the bearing walls shall be four (4) inches thicker than is otherwise prescribed. When iron or wooden girders are substituted for partition or division walls, the building shall not exceed one hundred (100) feet between the exterior or party walls; provided, that if the building does not exceed two stories in height and is used for warehouse purposes only, the distance between the exterior or party walls shall not exceed one hundred and thirty-seven, and one-half (137½) feet.

Walls of Buildings on Street Corners.

Section 205. In all buildings more than two (2) stories in height hereafter erected on a street corner in this city and county, except buildings used or occupied as dwelling houses, hotels, apartment, tenement or lodging houses, or offices, the bearing walls, if there are openings in them, shall in all cases be four (4) inches thicker than is otherwise prescribed in this Ordinance. The material used in the extra four inches above mentioned, may be concentrated in piers or buttresses.

Reduced Thickness for Interior Walls.

Section 206. When the walls of any building are less than twenty-five (25) feet apart and less than forty (40) feet in depth, or when there are cross-walls which intersect walls not more than forty (40) feet apart, or when piers or buttresses are built into the walls, the interior walls may be reduced in thickness as in just proportion to the number of cross walls, piers or buttresses, and their nearness to each other; provided, however, that this section shall not apply to walls below sixty (60) feet in height, and that such wall shall not be less than thir-

teen (13) inches thick at the top, and gradually increased in thickness by setoffs to the bottom.

Existing Party Walls.

Section 207. Walls heretofore built for or used as party walls, whose thickness at the time of their erection was in accordance with the requirements of the then existing laws, but which are not in accordance with the requirements of this Ordinance, may be used, if in good condition, for the ordinary uses of party walls, provided the height of the same be not increased.

Lining Existing Walls.

Section 208. When the height of existing party or independent walls, whose thickness is less than that required under this ordinance is increased, it shall be done by iron or steel girders and columns, which shall be properly anchored to said walls, or a lining of brickwork to form a combined thickness with the old wall of not less than four (4) inches more than the thickness required for a new wall of the height to which the old wall is to be increased. The said linings shall be supported on proper foundations and carried to such height as the Board of Public Works may require. No lining shall be less than nine (9) inches in thickness, and all lining shall be laid in cement mortar and thoroughly anchored to the old brick walls with suitable wrought iron anchors, placed two (2) feet apart, and properly fastened and driven into the old walls in rows alternating vertically or horizontally with each other. The old walls must be cleaned of plaster or other coatings before any lining is built against the same. The floor timbers shall cross the brick lining and rest in both old and new walls.

Walls of Buildings Now in Course of Construction.

Section 209. Any building, the erection of which was commenced in accordance with the specifications and plans submitted to and approved by the Department of Public Works prior to the passage of this ordinance, if properly constructed and in safe condition, may be completed, or built upon, in accordance with the requirements of the law as to thickness of walls, in force at the time such specifications and plans were approved.

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Parapet or Fire Walls.

Section 210. All exterior and division or party walls over fifteen (15) feet high, excepting where such walls are to be finished with cornices, gutters or crown mouldings, shall have parapet walls not less than nine (9) inches in thickness, and carried two (2) feet above the roof; but for warehouses, factories, stores and other buildings used for commercial and manufacturing purposes, the parapet walls shall not be less than thirteen (13) inches in thickness, and carried three (3) feet above the roof, and all such walls shall be coped with stone, terra cotta, cast-iron, or cement.

Hollow Walls.

Section 211. In all walls that are built hollow, the same quantity of stone, brick or concrete shall be used in their construction as if they were built solid, as in this ordinance provided, and no hollow wall shall be built unless the parts of same are connected by proper ties, either of brick, stone or iron, placed not over twenty-four (24) inches apart.

If one or both of the solid parts of the wall are less than nine (9) inches in thickness, such walls shall not be used as supports for any part of the structure of such building, but if both the solid parts of such walls are nine (9) inches or more in thickness, such walls may be used as bearing walls, and in all cases where the load is imposed upon such hollow walls, or any part thereof, there shall be bond stones or iron bond plates covering the whole of the solid parts of such walls, and so proportioned as not to strain either the material of the wall or of such bond stones or bond plates.

Walls and Columns.

Section 212. Walls may be built supporting a portion of the floor in addition to their own weight, or self-supporting or curtain walls, in which latter case steel shall be built in the wall to support the floor. The center of no interior column shall be at a greater distance than twenty-four feet from the wall.

Curtain Walls.

Section 213. Self supporting or curtain walls built in between columns or piers may be of brick or of reinforced concrete. They shall not be less than 13 inches thick for the upper 40 feet and not less than 17 inches thick for the lower portion of the wall. The

change in thickness shall occur at the nearest floor line. Curtain walls shall not be used for bearing walls.

THICKNESS OF WALLS.

Section 214. Exterior, party division and bearing wall, shall be built of thicknesses given in table of Section 177 under Class "B" buildings up to the limit in height.

The exterior walls of brick, stone or concrete buildings shall be the front, rear and side and court walls, and such walls shall extend from the foundation to the top of such buildings.

Walls and Piers.

Section 215. In all walls of the thickness specified in this Ordinance the same amount of materials may be used in piers or buttresses. Said piers and buttresses shall not be more than fourteen (14) feet on centers, and walls between said buttresses shall be not less than thirteen (13) inches thick. Bearing walls are those walls on which the beams, girders or trusses rest. If any horizontal section through any part of any bearing wall in any building shows more than thirty (30) per cent. areas of flues and openings, the said wall shall be increased four (4) inches for every fifteen (15) per cent. or fraction thereof, of flue or opening area in excess of thirty (30) per cent.

The walls and piers of all buildings shall be properly and solidly bonded together with close joints filled with mortar. They shall be built to a line and carried up plumb and straight. The walls of each story shall be built up the thickness to the top of the beams above. All bricks shall be well wet before being laid.

All basement piers shall be built of concrete, stone or good hard, well burnt brick laid in cement mortar. Every brick pier containing less than nine (9) superficial feet at the base, which supports and beam, girder, arch or column on which rests a wall or lintel spanning an opening over ten feet and supporting a wall, shall at intervals of not over five (5) feet, in a vertical line, have built into it a bond stone not less than nine (9) inches thick, and of the full size of the piers. All cap and bond stones of cut granite or stone, proportioned to the weight to be carried, but not less than nine (9) inches in thickness, by the full size of the pier, shall be set under all columns or girders, except where a

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nine (9) inch bond-stone is placed immediately below said cap-stone, in which case the cap-stone may be reduced in horizontal dimensions, at the discretion of the Board of Public Works. Isolated brick piers shall not exceed in height ten (10) times their least dimensions.

In all brick walls every sixth course shall be a heading course.

Ashlar Facing.

Section 216. Stone used for the facing of any building, and known as Ashlar, shall not be less than four (4) inches in thickness.

Stone ashlar shall be anchored to the backing, which shall be of such thickness as to make the walls, exclusive of the ashlar, conform in thickness with the requirements of this Ordinance, provided that if the ashlar be at least eight (8) inches thick, and bonded into the backing, it may be counted as part of the thickness of the wall.

All ashlar stone, unless bonded, shall be strongly and securely anchored to the wall with iron anchors laid into the stone at least one (1) inch.

Iron ashlar plates used in imitation of stone ashlar on the face of a wall shall be backed with the same thickness of brickwork as a stone ashlar.

Mortar for Walls and Ashlar.

Section 217. All foundation walls, isolated piers, parapet walls and chimneys above roofs, and all other walls built of brick and stone shall be laid in lime and cement mortar.

The backing of all stone ashlar shall be laid with cement mortar, or cement and lime mortar mixed, but the back of the ashlar may be parged with lime water to prevent discoloration of the stone.

Increased Thickness of Walls for Buildings of Great Depth.

Section 218. For each one hundred (100) feet, or fraction thereof, that any building without a cross-wall or buttress exceeds a depth of one hundred and thirty-seven and one-half ($137\frac{1}{2}$) feet, the side or bearing walls thereof shall be increased in thickness four (4) inches more than is prescribed in this Ordinance for the thickness of walls.

Plain Concrete Walls.

Section 219. Concrete walls shall be constructed in accordance with Section 183 of this Ordinance, relating to Class "B" buildings.

Reinforced Concrete Walls.

Section 220. Reinforced concrete walls shall be constructed in accordance with Section 184 of this Ordinance, relating to Class "B" buildings.

Recesses and Chases in Walls.

Section 221. Recesses for stairways or elevators may be left in the foundation or cellar walls of all buildings, but in no case shall the walls be of less thickness than the walls of the fourth story, unless reinforced by additional piers with iron or steel girders, or stone or steel columns and girders, securely anchored to walls on each side. Recesses for alcoves and similar purposes shall have not less than eight (8) inches of brickwork at the back thereof and shall not be more than eight (8) inches in width. Recesses shall be arched over or spanned with iron or steel lintels, and shall not be carried up higher than eighteen (18) inches below the bottom of the beams or joists of the floor next above.

A chase for water or other pipes shall not be made in any pier, and in a wall the chase for such pipes shall not exceed one-third ($\frac{1}{3}$) the thickness of such wall. The chases around such pipe or pipes shall be filled with incombustible material for a distance of one (1) foot at the top and bottom of each story.

A horizontal recess or chase exceeding four (4) feet in length shall not be allowed in any wall without the permission of the Board of Public Works.

The aggregate area of recesses and chases in any wall shall not exceed one-fourth of the whole area of the face of the wall in any story, nor shall any such recess be made within a distance of six (6) feet from any other recess in the same wall.

Construction of Walls.

(Tied, anchored and braced.)

Section 222. In no case shall any wall or walls of any building be carried up more than two (2) stories in advance of any other wall, except by permission of the Board of Public Works. The front, rear, side and party walls shall be properly bonded together, or they shall be anchored to each other, every six (6) feet in their height by wrought iron tie-anchors not less than one and one-half ($1\frac{1}{2}$) by three-eighths ($\frac{3}{8}$) of an inch in size, and not less than twenty-four (24) inches in length. The side anchors shall be built into the side or party

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walls not less than sixteen (16) inches, and into the front and rear walls, so as to secure front and rear walls to the side or party walls, when not built and bonded together. All exterior piers shall be anchored to the beams or girders on the level of each tier.

The walls and beams of every building, during the erection or alteration thereof, shall be stoutly braced from the beams of each story, and, when required shall also be braced from the outside, until the building is enclosed. The roof of wood beams shall be safely anchored, with plank or joist, to the beams of the story below until the building is inclosed. If walls are made of brick all brick shall be laid up in cement mortar or in cement lime mortar.

Arches and Lintels.

Section 223. Openings for doors and windows in all brick, stone or concrete buildings shall have good and sufficient arches of stone, brick, concrete or terra cotta, well built and keyed, and with good and sufficient abutments; or the opening shall have lintels of stone, iron or steel of sufficient strength, which shall have a bearing at each end of not less than five (5) inches on the wall. On the inside of all openings in which lintels shall be less than the thickness of the wall to be supported there shall be timber lintels, which shall rest at each end not more than three (3) inches on any wall, and shall have a suitable arch turned over the timber lintels. Or the inside lintel may be of cast-iron, wrought-iron or steel, and in such case stone blocks or cast-iron or steel plates shall not be required at the ends where the lintel rests on the walls, provided the opening is not more than six (6) feet in width.

All masonry arches shall be capable of sustaining the weight and pressure which they are designed to carry. Tie rods shall be used where necessary to secure stability.

Anchors and Ties.

Section 224. In all brick, stone or concrete buildings beams and joists shall be tied to the walls or to themselves, so as to form a continuous tie across the building every eight (8) feet.

All anchors shall be of three-eighths ($\frac{3}{8}$) by one and one-half ($1\frac{1}{2}$) inch bandiron or heavier, or, if formed of round iron, they shall be of equal strength. They shall be at least

three (3) feet long, with washers of iron at least six (6) by six (6) inches secured to them at the outer ends. The other ends shall be turned down two (2) inches and shall be securely tied to the beam or joist at the side and in such a way that the anchor is self-releasing.

Self-releasing box anchors, provided they act satisfactorily as a tie and are of the required strength, may be used.

When walls run parallel or nearly parallel with the floor beams, they shall be properly tied by iron straps and anchors to said floor beams every ten (10) feet.

Furred Walls.

Section 225. In all brick walls furred with wood there shall be a horizontal furring strip at the top and bottom of joists, except where joists run parallel with and up against walls. Furring against brick walls in buildings of Class "C" shall not exceed one (1) inch in thickness, and wedges of wood or iron shall not be driven into any wall within eight (8) inches of any flue or fireplace.

Flues of ranges, boilers and stoves in hotels, restaurants and boarding houses shall not be furred with wood, but shall be plastered directly on the brick or on metal lath in the story where the fires are located.

Timber In Walls Prohibited.

Section 226. No timber shall be used in any walls of any building where stone, brick or iron is commonly used, except inside lintels, as in this Ordinance provided, and brace block not more than eight (8) inches in length.

Bond Iron.

Section 227. Bond iron at least three by one-quarter ($3 \times \frac{1}{4}$) inches shall be placed under each tier of floor and ceiling joists of all Class "C" buildings, and run around the entire walls of the building, and must be lock jointed and anchored at each angle.

Trusses.

Section 228. Roof trusses may be of steel or of steel and timber, or entirely of timber. Trusses of over 45 feet span shall rest upon steel or wood columns which shall be continuous to the foundations.

Steel Trusses.

Section 229. If trusses are framed

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of steel they shall be constructed in accordance with the provisions of this ordinance governing the construction of steel trusses in Class A buildings.

Combination Trusses.

Section 230. Trusses of timber and iron or steel shall be built in accordance with the allowed unit stresses for steel provided in Section 66, and of timber in accordance with the provisions of Section 34, of this ordinance.

Framing of trusses shall be in accordance with standard practice. Timber in tension or compression, shall be stressed only in the direction of the fibres.

Timber Details.

Section 231. All wood beams, joists and other timbers in the party walls of every Class "C" building shall be separated from the beam or timber entering in the opposite side of the wall by at least four (4) inches of solid mason work. All wood trimmer and headbeams or joists shall be proportioned to carry with safety the loads they are intended to sustain. Every wood header or trimmer more than six (6) feet long, used in any building, shall be hung in stirrup irons of suitable thickness for the size of the timbers. Every wood beam, or joist, except header and tail beams, shall rest at least four (4) inches on the wall, or upon a girder, as authorized by this ordinance. The ends of all wood floor and roof beams, where they rest on brick walls, shall be cut to a bevel of three (3) inches in their depth. In no case shall either end of a floor or roof beam be supported on stud partitions, except against a brick wall. All wood floors and wood roof beams shall be properly bridged with cross-bridging, and the distance between bridgings, or between bridging and walls, shall not exceed eight (8) feet. Solid bridging not less than two (2) inches thick shall be placed between joists over all girders. All wood joists shall be trimmed away at least one and one-half (1½) inches from all flues and chimneys whether the same be smoke, air or any other flues or chimneys. The trimmer beam shall be not less than eight (8) inches from the inside face of a flue and four (4) inches from the outside of a chimney breast, and the header beam not less than two (2) inches from the outside face of the brick or

stonework of the same, except that for the smoke-flues of boilers and furnaces where the brickwork is required to be eight (8) inches in thickness, the trimmer beam shall be not less than twelve (12) inches from the inside of the flue. The header beam carrying the tail beams of a floor, and supporting the trimmer arch in front of a fireplace, shall be not less than twenty (20) inches from the chimney breast.

Cutting for piping or other purposes shall not be done so as to reduce the strength of the supporting parts below that required by the provisions of this ordinance.

All wood partitions shall have solid caps and sills and at least one row of bridging not less than two (2) inches thick, and of the full width of the standing studding, and all solidly blocked behind the ribbon on the line of the spring of the cove, to effectually prevent the passage of fire or smoke. Bearing partitions shall have double plates.

Double studs shall be used on the sides and top of all openings, with heads and truss braces cut in and secured.

Anchors and Straps for Wood Joists and Girders.

Section 232. Girders which support beams or joists shall be anchored to the walls and fastened to each other by suitable iron straps. The ends of wood beams or joists resting upon girders shall be butted together end to end and strapped by wrought-iron straps of the same size, the same distance apart, and in the same beam as the wall anchors, and shall be fastened in the same manner as said wall anchors; or they may lap each other at least twelve (12) inches, and be well spiked together where lapped.

Each tier of beams, front and rear, opposite each pier, shall have hard wooden anchor straps dovetailed into the beams diagonally, which straps shall cover at least four beams, and be one (1) inch thick and four (4) inches wide; but such anchor straps shall not be let in within four (4) feet of the center of the beams, or wood straps may be nailed on the top of the beams and kept in place until the floors are being laid. Every pier and wall, front or rear, shall be well anchored to the beams of each story, with the same size anchors as are re-

quired for sidewalls, which anchors shall hook over the fourth beam.

Attics.

Section 233. Attics or the unfinished space between the ceiling and roof rafters of every building shall be divided into compartments or rooms in order to prevent the rapid progress of fire. Such compartments shall not have a floor area of more than twenty-five hundred (2500) square feet.

FLOORS, ROOFS, PARTITIONS AND CEILINGS.

Floors.

Section 234. Floors shall be built with timber joists laid as prescribed by Sections 231 and 232 of this ordinance.

Roofs.

Section 235. Roofs shall be built as floors or upon trusses. The roofs of all Class "C" buildings hereafter erected within the city and county shall be covered with either metal, slate, tiles, terra cotta, a four-ply pure asbestos roofing, or asphaltum; provided, however, that said asphaltum shall be first laid over five plies of felt, or two coats of malthoid, or equivalent prepared roofing, well cemented together, and then covered with at least three-quarters ($\frac{3}{4}$) of an inch of gravel embedded in said asphaltum, passes through a screen whose meshes shall not exceed one-half ($\frac{1}{2}$) inch and rejected by a No. 6 screen.

Whenever the roof or roofs of any building or buildings within the fireproof roofing limits shall (in the judgment of the Board of Public Works) be or become damaged to the extent of 40 per centum of the value of said roof or roofs, then said roof or roofs shall be covered as provided for new roofs.

The supports, rafters and all parts of roofs, within the fireproof roofing limits, rising at any point to a height of more than twenty (20) feet from the top of the masonry walls shall be built of fireproofing material.

Leaders.

Section 236. All buildings shall be kept provided with proper metallic leaders for conducting water from the roofs in such manner as shall protect the walls and foundations of said buildings from injury. In no case shall the water from the said leaders be allowed to flow upon the sidewalk, but the same shall be conducted by pipe or pipes to the sewer. If there be no sewer in the street upon which said buildings front, then the water

from said leader shall be conducted by proper pipe or pipes below the surface of the sidewalk to the street gutter.

Partitions.

Section 237. Partitions shall be built of studding constructed as described in Section 231 of this Ordinance. All plastering shall be done upon metal or wooden lath.

Ceilings.

Section 238. All ceiling shall be of metal or wooden lath, for plaster.

MISCELLANEOUS.

Tanks.

Section 239. Tanks containing more than five hundred (500) gallons of water or other fluid placed on the roof or above the roof of any building shall be supported on iron or steel beams, of sufficient strength to safely carry the same, and the beams shall rest at both their ends on brick walls or on iron or steel girders or iron or steel columns or piers of masonry. Underneath such water-tanks or on the side near the bottom thereof, there shall be a short pipe or outlet, not less than four (4) inches in diameter, fitted with a suitable valve having a lever or wheel-handle to same, so that firemen or others can readily discharge the weight of the fluid contents from the tank, in case of necessity. Where practicable such tanks shall be placed over or near a line of stairs. Covers on top of water tanks placed on roofs, if of wood, shall be covered with metal.

Tank Towers.

Section 240. Tank towers erected within the fire limits shall be constructed entirely of non-combustible materials.

Light Shafts.

Section 241. Light shafts are enclosed structures passing through the floor or floors for the purpose of admitting light and air; or an open space within a building, entirely surrounded by walls. The walls or partitions forming light or vent-shafts adjacent to any exterior wall in buildings of Class "C" shall be built of brick or entirely of other fireproof materials.

The walls or partitions forming all other light or vent-shafts in any building of Class "C" shall be built as above described or of wooden studs lined on both sides with fireproof materials.

The walls of all light or vent-

shafts hereafter erected shall be carried up at least three feet above the level of the roof, and, in case the walls are of brick or concrete they shall be 9 inches thick and 2 feet 6 inches high. All openings in light shafts shall have metal or metal-covered frame.

All walls and ceilings within ten (10) feet of openings in floors, except those necessary to admit stairways, shall either be constructed of fireproof material or entirely covered with metal, lath and plaster three-fourths ($\frac{3}{4}$) of an inch thick.

The facias around such openings must be covered with fireproof material, but doors, sashes and trim may be of wood.

Elevator Houses.

Section 242. Elevator houses built on roofs shall be constructed with studded walls covered on the outside with metal, or with metal lath and plaster.

Fire Places and Flues.

Section 243. Fire places and flues shall be constructed in accordance with Sections 270, 272, 273, 274 and 275 of this Ordinance.

Skylights.

Section 244. Skylights shall be constructed in accordance with Sections 108, 291 and 292 of this Ordinance.

Floor and Sidewalk Lights.

Section 245. Floor and sidewalk lights shall be constructed in accordance with Sections 109, 297 and 315 of this Ordinance.

Cornices, Gutters and Leaders.

Section 246. Cornices, gutters and leaders shall be constructed in accordance with Sections 110 and 293 of this Ordinance.

Elevators.

Section 247. Elevators shall be constructed in accordance with Sections 111 and 301 to 209, inclusive, of this Ordinance.

Stairs.

Section 248. Stairs shall be constructed in accordance with Section 112 of this Ordinance.

Stand Pipes.

Section 249. Stand pipes shall be constructed in accordance with Section 310A of this Ordinance.

PART X.

Provisions Relating to Construction of Special Structures.

Grain Elevators.

Section 250. Nothing in this Ordinance shall be construed so as to apply to or prevent the erection of what are known as grain elevators, as usually constructed, provided they are erected on tidewater, in isolated localities and outside the fire limits, under such conditions as the Board of Supervisors may prescribe.

Exhibition Buildings.

Section 251. Buildings for fair and exhibition purposes, towers for observation purposes and structures for similar uses, outside of the fire limits, whether temporary or permanent in character, shall be constructed in such manner and under such conditions as the Board of Supervisors may prescribe.

Smokehouses.

Section 252. All smokehouses shall be of fireproof construction, with brick walls, iron doors and brick or metal roofs. An iron guard shall be placed over three feet above the fire, and the hanging rails shall be of iron. The walls of all smokehouses shall be built up at least three (3) feet higher than the roof of the building in which they are located.

Planing Mills, Etc.

Section 253. In buildings of Class "C" used as planing mills, wagon or carriage manufactories, furniture manufactories, or any other wood-working factories, all joists and studding bearing weight, shall be covered with metal lath and plaster, and the floor shall be double, with the top floor laid over three-quarters ($\frac{3}{4}$) of an inch of mortar or two thicknesses of asbestos paper, unless such building is constructed on the slow burning or mill construction plan, in which case the piers shall not be less than nine (9) feet on centers, and upon them shall extend from one beam to another, and shall be not less than three (3) inches thick.

All planks shall be laid to the end of the timbers.

PART XI.

Provisions Relating to the Construction of Frame Buildings.

Explanation.

Section 254. A wood frame build-

ing is a building or structure whose exterior walls, or a portion thereof, are constructed of wood. Wood frames covered with metal shall be deemed to be wood structures.

No wood frame building now erected within the fire limits shall be enlarged or built upon.

No wood or frame building now erected within the fire limits shall be repaired without a permit from the Board of Public Works.

Height Limitation.

Section 255. Wood frame buildings shall be limited to a height of forty-five (45) feet. All spires of churches and towers of breweries which are higher than forty-five (45) feet shall have such parts as are higher built of and covered with fireproof materials.

Walls.

Section 256. The walls of wood frame buildings shall be constructed with studding, covered with weather boarding on the outside. No uncovered studding will be allowed against the wall of an adjoining building or structure.

Thickness of Foundation Walls.

Section 257. Brick and concrete foundations for wood frame buildings, one and two stories in height, used as dwellings, must not be less than eight (8) inches thick, and not over four (4) feet high. When the foundations are more than four (4) feet high they must not be less than thirteen (13) inches thick.

Foundations for three-story wood frame buildings shall not be less than thirteen (13) inches thick, and for buildings over three stories the foundations shall not be less than seventeen (17) inches thick.

When the foundation walls of wood frame buildings are used for embankment or retaining wall, two and three-story buildings with basement shall have foundation not less than thirteen (13) inches thick, and not higher than eight (8) feet from top of top footing to bottom of first floor joists (first tier).

If a deeper basement be desired the walls thereof shall be not less than seventeen (17) inches thick; the bottom or footing of said walls shall not be higher than ten (10) feet from top of top footing to under side of first story floor joists, and the footing shall have a spread of one-half ($\frac{1}{2}$) the thickness of the wall resting on it.

Where it is not allowable to have footing on the outside of a foundation

or basement wall, the footings must extend far enough on the inside to make them the required width.

Size of Studding for Exterior Walls and Bearing Partitions.

Sections 258. For a building of two stories or less in height, except factories, mills or warehouses, the studding for the outside walls and bearing partitions shall not be less than 2x4 inches; for a building of three stories in height, the studding shall not be less than 3x4 inches, to the bottom of the upper floor joists, and 2x4 inches for the remaining height; for a building of four stories in height, the studding shall not be less than 3x6 inches for the first story, and 2x6 or 3x4 inches for the second and third stories, and 2x4 inches for the fourth story.

Where the bearing partitions are less than twelve (12) feet apart, the studding may be less than the outside walls, but never less than 2x4 inches. Partitions dividing several stairways and sliding doors may by permission of the Board of Public Works be less than 3x4 inches.

Studding on the exterior and interior walls of buildings shall not be placed more than sixteen (16) inches from centers.

The underpinning of buildings shall be one (1) inch thicker than the studding of the story immediately above, and said studding shall not be placed more than sixteen (16) inches from centers.

Dividing Partitions.

Section 259. All dividing partitions between buildings shall be closed boarded from the lower floors to the ground, and from the upper ceilings close to the underside of the roof boarding, so as to effectually check all connection from one building to another. Where a large building is divided into tenements the boarding shall be applied on each dividing partition. The distance between dividing partitions shall not exceed twenty-five (25) feet.

Attics.

Section 260. Attics or the unfinished space between the ceiling and roof rafters of frame buildings shall be divided into compartments or rooms in order to prevent the rapid progress of fire. Such compartments shall not have a floor area of more than 2500 square feet.

Framing.

Section 261. When stories are

framed separately, each tier of studding must have top and bottom plates, and the top plates must be doubled; when stories are not framed separately, proper bridging must be placed behind the ribbon at the ceiling line and on top of the joist at the floor line. Bridging must be two (2) inches thick and of the full width of the studding in every case.

All wood beams or joists shall be trimmed away at least one and one-half ($1\frac{1}{2}$) inches from all flues and chimneys, whether the same be a smoke, air or any other kind of chimney or flue.

The trimmer beam shall not be less than eight (8) inches from the inside face of a flue, and four (4) inches from the outside of a chimney breast, and the header beam must not be less than two (2) inches from the outside of the brick or stonework of the same, except that for the smoke flues of boilers and furnaces where the brickwork is required to be eight (8) inches in thickness the trimmer shall not be less than twelve (12) inches from the inside of flue.

Bridging.

Section 262. All stud walls, or partitions hereafter built, altered or repaired, shall have one row of bridging for every seven feet in height over the first seven. Said bridging shall in all cases extend to the lathing or sheathing, so as to prevent the passage of fire and smoke, and shall be the same thickness as the studding. All outside walls and cross-partitions shall be thoroughly angle braced; all joists shall have solid end blocking. All buildings over twenty-five (25) feet in width shall have a row of solid blocking over girder or partition of stairways. A row of cross bridging at least two (2) inches thick must be placed between the floor joists at least every twelve (12) feet.

Furring.

Section 263. When a chimney is furred out, the space between the chimney and the breast shall be so built that the passage of fire and smoke shall be intercepted, and wherever cove ceilings are used they shall be solid blocked behind on the studding at the spring of the cove.

Bay Windows.

Section 264. Bay, oriel or swell windows constructed in frame build-

ings shall have spaces of not less than five (5) feet in width, measured on outside of building clear of finish; provided, that in buildings built on lots having a frontage of twenty-five (25) feet or less, the space between said bay, oriel or swell windows may be decreased, provided the studding in said space shall be increased in thickness so as to contain the same amount of lumber as would be contained in the studding of the piers in the aforesaid spaces of five (5) feet, but the spaces shall be at least two (2) feet six (6) inches between bays in any case.

Such windows may project not more than three (3) feet over the street line, measured to the finish; they must not be more than ten (10) feet wide, measured from end to end, and the finish of their soffits must be at least ten (10) feet above the sidewalk, unless the window is, entirely back of the street line.

Frame Factories Not Over Two (2) Stories High.

Section 265. The height of two story or less frame buildings used as factories shall be limited to thirty-five (35) feet and the exterior and bearing walls of said buildings shall be built of 2x6 studs, sixteen (16) inches from centers.

Frame Factories Over Two Stories High.

Section 266. All frame buildings more than two (2) stories high hereafter erected or enlarged, to be used as factories, shall be constructed as follows: The weights of all the floors shall be concentrated at certain points, and no support shall rest directly upon a stud-wall, but all beams, girders, and girders supporting floors shall rest directly upon posts. Said beams and girders supporting floors, shall not be more than nine (9) feet apart; upon these shall rest the floor, which shall extend from one girder or beam to another, and shall not be less than three (3) inches thick.

Planks shall be laid to the ends of the timbers.

Roof.

The roof shall be covered with incombustible materials, as described for buildings within the fire limits, Class "B" and "C."

Studs.

The filling between posts and walls

shall be built of not less than 2x4 inch studs, 16 inches on centers.

PART XII.

GENERAL PROVISIONS.

Explanatory.

Section 267. The following general provisions shall apply to the construction of all buildings of all classes contemplated in this Ordinance, unless specific exceptions or definite clauses under the various classes of buildings be made, in which case the said specific exceptions and definite clauses shall govern.

Openings in Exterior, Division and Party Walls.

Section 268. Openings through exterior divisions or party walls, whereby communication is made with an adjoining building or room, shall not exceed eight (8) feet in width, and shall have an iron lintel or solid brick arch formed with three rollocks, with wooden tin-clad fire doors on each side of each such opening, and not more than one such opening in every fifty feet or portion thereof in the length shall be allowed in said walls in any one story.

Said fire doors shall be made of two thicknesses of matched boards, crossed at right angles, aggregating one and three-quarters ($1\frac{3}{4}$) inches in thickness, nailed with clinched nails, and covered on both faces and edges, first with one-eighth ($\frac{1}{8}$) of an inch of sheet asbestos and then with 10x14-inch tin plate, with joints locked and hammered down over nail heads. All hinges, hangers, latches and appurtenances shall be bolted to the doors; all tracks and stops shall be bolted through or into the wall with expansion bolts, and all eyes or lugs shall be built into the wall. Doors shall extend three (3) inches over masonry and shall be hung upon iron eyes or frames, independently of any wood work.

Basement Enclosures, Elevators and Stairs.

Section 269. The bottom of every elevator, and of every stairway leading to a basement shall be enclosed with a tight partition and door extending from the basement floor to the under side of the first floor, which enclosure shall be of the construction required for a building of the class in which placed and shall contain no glass except wired glass one-quarter inch thick in metal sash.

Chimneys and Flues.

Section 270. All chimneys and flues

hereafter constructed, except as provided in Sections 106 and 279 hereof, shall be of brick or stone; their enclosing walls shall be not less than four inches thick, and shall, if less than eight inches thick, be lined on the inside with well-burnt clay or terra cotta pipe not less than one inch thick. Said lining shall start from the bottom of a flue or the throat of a fireplace, be continuous to the top of the flue, and shall be built in first and bricked around as carried up. Flues where lining is not required by this Ordinance shall have the joints struck smooth on the inside, and, if less than eight inches thick, shall be smoothly plastered for the entire height on the outside.

No smoke flue shall be less than $7\frac{1}{2}$ inches in the clear, and such sized flue shall have but one inlet; for two inlets the flue shall be not less than $7\frac{1}{2}$ by $11\frac{1}{2}$ inches in the clear; for three inlets not less than $7\frac{1}{2}$ by $15\frac{1}{2}$ inches in the clear, and for a larger number of inlets the size shall be increased in same proportion. Flues larger than two hundred square inches and less than five hundred square inches area shall be surrounded by walls not less than eight inches thick; flues larger than five hundred and less than one thousand square inches area shall be surrounded by walls not less than twelve inches thick to a height of fifteen feet above the inlet, and eight inches thick the remaining height; flues larger than one thousand square inches shall be proportionately increased in size and shall be lined with firebrick for at least twenty feet above the inlet.

Bakery oven flues shall be not less than 12 by 12 inches in the clear, and shall be surrounded by brick work not less than eight inches thick.

The inside four inches of all boiler flues for boilers of over twenty-five horse-power shall be of fire-brick, laid in fire mortar, for a distance of twenty-five feet in any direction from the source of heat.

All chimneys having a greater flue area than two hundred and sixty (260) square inches shall be carried up at least ten feet above the highest point of the roof of the building of which they form a part, and ten feet above the highest point of any roof within fifty feet of such chimney.

Where a smokepipe is to enter a chimney or flue, a tile thimble not less than one inch thick shall be placed as construction progresses. Thimbles shall be surrounded by four inches of brick-work brought out flush with fur-

ring, extend to the face of the plastering, and not be nearer than six inches to any wood, lath and plaster.

Chimneys not part of a wall shall not be built upon any floor or beam of wood, but shall be built from the ground up, and shall not increase in size from the foundation. No chimney shall be corbelled out more than eight inches from a wall and corbelling shall consist of at least five courses of brick, but no corbelling shall be more than four inches in twelve-inch walls. Offsets for reducing the size of chimneys shall not be greater than one inch to each course.

Flues in party walls shall not extend within four inches of the center of the wall, and joint flues in party walls shall be separated across the wall by an eight-inch width of brick work for the entire length.

No joist or girder shall be supported on the walls of any chimney or flue, and no woodwork shall be placed nearer than two inches to the outside face of, or within seven inches of the inside of any smoke, air or other flue. All wood joists shall be trimmed away at least two inches from any smoke, air or other flue; the trimmer beam shall not be less than eight inches from the inside of the flue, and four inches from the outside of a chimney breast, except that for smoke flues the brickwork of which is by this Ordinance required to be eight inches thick or more, the trimmer beam shall not be less than twelve inches from the inside of the flue.

Chimneys built outside of frame structures, or in light wells thereof, shall be well anchored, at intervals of not less than ten feet, to the stud walls.

All chimneys and flues shall extend at least four feet above a flat roof, and at least two feet and six inches above the ridge of a peaked roof, and if rising above the roof to a height equal to more than six times their thickness, shall be properly anchored.

Chimneys and stacks connected with steam boilers shall extend not less than ten feet above the woodwork of the roof, or any adjacent roof, and if sawdust, shavings or wood are burned, shall extend twenty feet above such roofs and be provided with a spark arrester. Spark arresters shall be placed upon all chimneys and stacks whenever by the Board of

Public Works is deemed necessary for the safety of property.

Chimneys and flues from boilers, restaurant and hotel ranges, bakers' ovens and similar unusually hot flues, shall have the outside exposed to the height of the room in which connection therewith is made, or be plastered directly upon the bricks.

All chimneys and flues shall be properly cleaned and all rubbish removed and same left smooth on the inside on completion of building.

Smokestacks.

Section 271. In buildings of Class "C" and frame buildings smokestacks of iron or steel may be used in connection with boilers and coffee roasters, provided same are not nearer than twenty inches to any woodwork where passing through floors, ceilings roofs or partitions, and are protected with a metal jacket twelve inches from the stack extending above and not less than twelve inches below the joists, and have metal umbrella to cover the roof opening high enough above the same to permit a free vent. Any woodwork or inclosure of such stack within four feet thereof, other than masonry or tile, shall be metal lathed and plastered or have equivalent protection. Such stacks on the outside of a building shall not be nearer than eighteen inches to any woodwork or wood lath and plaster, or nearer than twelve inches to any woodwork or wood lath and plaster, protected with metal extending two feet on each side of such stack. Smokestacks of brick or concrete shall be constructed as prescribed by Section 107 of this Ordinance.

Fireplaces.

Section 272. All fireplaces and chimney breasts where mantels are placed, except as provided for patent chimney fireplaces, whether intended for ordinary fireplaces or not shall have trimmer arches to support the hearth; arches shall be of brick, stone burnt clay or concrete, at least twenty inches wide measured from the face of the chimney breast, and their length shall not be less than the width of the chimney breast. Wood centers shall be removed from under trimmer arches, and no timber shall be placed under any fireplace or hearth. Hearths shall be of brick, tile or stone.

Fireplaces shall have arched heads with an iron arch bar over the top of the opening, not less than $\frac{1}{4} \times 2\frac{1}{2}$ inches, turned up at the ends two inches in each side of a chimney breast, so as to make a perfect bond for arch. All fireplace openings were furred with wood on face, shall be surrounded by a brick rim eight inches wide projecting four inches, bonded into brickwork. The firebacks and jambs of all fireplaces shall not be less than eight inches thick, of solid masonry. When a grate is set in a fireplace, a lining of firebrick at least two inches thick shall be added to the fireback, unless soapstone tile or cast iron is used, and filled solidly behind with fireproof material.

No mantel or other woodwork shall be exposed back of a summer piece; the iron work of the summer piece shall be placed against the brick or stonework of the fireplace. No fireplace shall be closed with a wooden fireboard. Pipes for gas logs or gas grates shall enter only at sides and through brickwork.

Fire Openings.

Section 273. Open fireplaces shall have arched heads, which shall, when ever possible, extend to the back of the tile or marble facing.

Patent Chimneys.

Section 274. Chimneys hereafter erected must be built of brick, or stone, not concrete, or a chimney known as a "Patent Chimney," for which a United States patent has been issued, and which has been approved in writing by the Board of Public Works. A permit from the Board of Public Works to erect Patent Chimneys must be secured and may be revoked for failure to erect the chimney as required by the patent, or in a workmanlike manner, and in accordance with "The Building Law."

All stove pipes, or terra cotta pipes, wherein fire is or may be used, which project through the roof or sides of any building now erected, and for which a United States patent has not been issued, must be removed within thirty (30) days after the passage of this Ordinance.

All "Patent Chimneys" shall be built up from the floor on which they are used, and in no case shall a stove pipe enter the bottom of a patent chimney.

If a patented chimney be erected on the outside of a building, it shall **rest on a substantial iron bracket**. If supported by brackets the brackets

must be of metal, and fastened to studding with bolts and nuts; screws or lag screws shall not be allowed. When erected on the inside of a building it shall rest on an iron plate, not less than one-quarter of an inch in thickness and not less than eight (8) inches of brickwork on top of said iron plate, and shall have a smoke-proof opening near the bottom for cleaning it. All patented chimneys shall be braced every four feet of their height. All joints must be cemented and the bands covering the joints shall be made of the best No. 24 iron, and filled with cement to make them smoke and spark proof.

All galvanized iron used for the outside covering of patented chimneys shall be of the best No. 24 iron, riveted together with rivets not more than three (3) inches apart, and may be seamed and top and bottom of seams secured by rivet and shall be ventilated by eight holes, not less than one (1) inch in diameter, said holes to be made close to the top of the chimney above the roof, so as to permit the escape of hot air; there shall be a space of not less than one inch between the clay pipe and the iron covering. No patented chimney shall be less than one-half inches from all wood work, and the opening in the roof and in each floor and ceiling through which it passes shall be closed with an iron plate or other fireproof material so as to prevent the passage of fire and smoke. Patented chimneys shall not be fastened to the laths of the siding of the building, but shall be securely fastened to the studding or cross-pieces with good iron straps, and in no case shall any patent chimney be suspended from any roof timber or floor beam.

No patented chimney shall have more than one inlet. All pipe used for patented chimneys shall be composed of pure calcined clay, not less than one (1) inch in thickness. Patented chimneys built on the inside of a house shall have an opening in the partition, enclosing the chimney, to permit of the cleaning of the same.

Patent Fireplaces.

Section 275. All fireplaces connected with patent chimneys or gas logs must be set, on an iron plate, not less than one-quarter of an inch in thickness and not less than three (3) feet nine (9) inches in length by three (3) feet in width which shall be free from all holes. Boards shall not be placed under the iron plates, which must rest on the floor joists. On top of the iron plate there shall be one (1) inch

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of concrete or cement, then a course of brick, followed by the tiling or marble. The strength of the floor must not be impaired by the cutting out for the fireplace. In lieu of resting on the floor joists, said iron plates may be suspended by wrought-iron stirrups of sufficient strength to sustain the fireplace and patent chimney.

The brick jambs of every fireplace or grate opening shall be at least eight (8) inches wide, and the backs shall not be less than eight (8) inches thick, and where fireplaces come over one another on separate floors, the jamb of the lower fireplace shall be wide enough to carry the patented chimney far enough to one side of the jamb above so that the patent chimney will pass the upper fireplace in as straight a line as possible. Where bends are necessary in patented chimneys off-sets shall be used. Said off-sets shall be made solid and without joints.

Inside Dimensions, Patent Chimneys.

Section 276. The inside dimensions of patent chimneys shall be as follows:

For fireplace flues, 18-inch openings	6 inch
For fireplace flues, 21-inch openings	7 inch
For fireplace flues, 24-inch openings	8 inch
For ordinary stove flues	6 inch
For French range flues	8 inch
For steel range flues	8 inch
For furnace flues	8 or 10 inch

Smoke Pipes.

Section 277. No smoke pipes, stove pipe, terra cotta pipe, earthen pipe, or other smoke flue, except as provided in this Ordinance, shall project through any external wall or window, or through the roof of any skylight of any building, and no smoke flue shall pass through any wooden partition of any building unless there is a ventilated air space at least four (4) inches around the pipe. Any smoke pipe passing through the floor or floors of any building shall be protected by a metal casing, extending from the ceiling to at least one (1) foot above the floor, and there shall be a ventilated air space of at least four (4) inches around said pipe.

Stove Pipes and Chimneys — Duty of Board of Public Works.

Section 278. It shall be the duty

of the Board of Public Works to cause every chimney, except as provided in this ordinance, to be carried up at least four feet above the extreme height of the building to which it is attached, and should the Board of Public Works deem any chimney unsafe to the building or buildings adjoining, they shall order the same to be carried four (4) feet above the extreme top of said adjoining building or buildings, and if, in the opinion of the Board of Public Works a galvanized iron pipe is not sufficient for the safety of the building or buildings, they shall inform the owner or owners, or the person having control thereof, and order a brick or terra cotta chimney to be erected in lieu thereof within ten (10) days after such order.

Gas Grates and Logs.

Section 279. Gas grates or gas logs shall not be placed in any building elsewhere than in a fireplace constructed in the manner prescribed in Section 272 and 275 of this Ordinance. All gas grates or gas log fireplaces shall be connected with a brick or patent chimney. Said brick or patent chimneys shall be erected and constructed in strict accordance with the provisions and requirements of the sections of this Ordinance which govern the erection and construction of brick and patent chimneys.

Chimneys of Cupolas.

Section 280. Steel cupola chimneys of foundries shall extend at least ten feet above the highest point of any roof within a radius of fifty (50) feet of such cupola. No wood work shall be placed within two feet of the cupola.

Heating Appliances.

Heating Furnaces.

Section 281. The top of all heating furnaces set in brick shall be covered with brick supported by iron bars, so constructed as to be perfectly tight; said covering shall be in addition to and not less than six inches from the ordinary covering of the hot air chamber. Smoke pipes and furnaces not set in brick shall be at least two feet from any woodwork. If said smoke pipes and furnaces are less than two feet from any wood work, said wood work must be protected by sheets of tin plate in such manner that an air space of at least two inches will be

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formed between the wood work and the tin plate, which shall extend one (1) foot beyond the furnace on all sides.

Fireproof Room for Steam Boilers or Furnaces.

Section 282. Every steam boiler or furnace in any building used for either stores, offices, mechanical or manufacturing purposes, or in hotels, lodging or tenement houses, theaters or assembly halls, or places of public entertainment, shall be enclosed in a fireproof room of brick or concrete walls. All doors leading into such room shall be so constructed as provided in Section 268 of this Ordinance.

Hot Air Boxes.

Section 283. All hot air boxes hereafter placed in the floors or partitions of buildings, except when such are entirely of incombustible material, shall be made of double pipes of tin plate, which shall be not less than one-half an inch apart and set in soapstone or equally fireproof borders, not less than two inches in width, to which the pipes shall be tightly joined by inserting the same into a groove, or the pipes and boxes shall be covered with asbestos one-sixteenth of an inch in thickness cemented thereon.

Hot air boxes of pipes less than 10 inches x 12 inches in size shall be kept at least half an inch from any wood work; those of greater size shall be kept at least one inch from any wood work. No wood work shall be placed within one inch of any metal pipe intended to convey steam or heated air, unless such pipe is protected by a facing of metal, soapstone or earthen ring; provided, that no covering, except it be of incombustible material, shall be placed within one inch of the outer surface of any steam pipe.

Erection of Steam Boilers, Furnaces, Etc.

Section 284. Boilers exceeding 10 H. P., used for generating steam for heating or motive power, and large furnaces, shall not be placed on any floor above the cellar of any building, unless the same is set on metal beams and arches and such beams shall be built into the walls. All steam boilers shall be provided with a tank or other receptacle of sufficient capacity to at least hold a sufficient supply of water to last six (6) hours.

Whenever steam boilers, large cooking ranges, furnaces, ovens, coffee roasters, candy kettles, and laundry

stoves set in brick, or other structures, in which fires are maintained are set or kept on any wooden floor, such floors shall be protected by not less than two (2) inches of brick laid with air spaces, or with not less than two (2) inches of hollow tiles, upon either of which shall rest a continuous sheet of metal bearing plate, not less than 3-16 inches in thickness, all joints of which shall be securely riveted; the top of said plate shall be covered with not less than five (5) inches of brick or concrete.

The backs of all ranges or kettles set in brick, built against any frame partition, or against any brick wall upon which there is any wooden furring, or laths, or sheathing, shall be extended with brick or hollow tiles, to a height of two (2) feet above the top of such range or kettle.

Registers.

Section 285. Registers located over a brick furnace shall be supported by a brick shaft, built up from the cover of the hot air chamber; such shaft shall be lined with metal pipe and all wood beams shall be trimmed away not less than four inches from it. Where a register is placed on any wood work in connection with a metal pipe or duct, the end of said pipe or duct shall be flanged over on the wood work only, under it. All registers for hot air furnaces placed in any wood work or combustible floors, shall have stone or iron borders, firmly set in plaster of Paris, or gauged mortar. All register boxes shall be made of tin plate or galvanized iron, with a flange on top to fit the groove in the frame, and the register must rest upon the same. There shall be an open space of two (2) inches on all sides of the register box, extending from the under side of the border through the ceiling below. The said opening shall be fitted with a tight tin, or galvanized iron casing, the upper end of which shall be turned under the frame. When a register box is placed in the floor, over a portable furnace, the open space on all sides of the register box shall not be less than three (3) inches. When only one (1) register is connected with a furnace, said register shall have no valve.

Drying Rooms.

Section 286. Dry rooms, dry boxes and all enclosures used for drying by artificial heat, must be plastered upon metal lathing and have the floor or bottom covered with incombustible material, or in lieu thereof may be

lined throughout with tin and asbestos not less than 1-8 inch in thickness, or other approved, incombustible material. If such dry rooms, dry boxes, or enclosures used for drying contain steam or other heated pipes, stoves or other heaters so arranged as to permit in flammable material to come in contact therewith, a metal netting of sufficient fineness must be so placed as to prevent such contact.

Steam and Hot Water Heating Pipes.

Section 287. Steam or hot water heating pipes shall not be placed within two (2) inches of any timber or wood work, unless the timber is protected by a metal shield, when the distance shall not be less than one (1) inch. All steam or hot water heating pipes when passing through floors and ceilings or lath and plaster partitions shall be protected by a metal tube one (1) inch larger in diameter than the pipe, having a metal cap at the floor and where they run in a horizontal direction between the floor and ceiling a metal shield shall be placed on the under side of the floor over them and on the side of beams running parallel with said pipe.

All wood boxes or casing enclosing steam or hot water heating pipes, and all wood covers to recesses in walls, in which steam or hot water heating pipes are placed, shall be lined with metal. All pipes or ducts used to convey air warmed by steam or hot water shall be made of metal or other fireproof material. All steam and hot water pipe coverings shall consist of fireproof materials only.

Ranges and Stoves.

Section 288. The backs of all ranges, candy furnaces and kettles, if set in brick and built against any frame partition, shall be not less than eight (8) inches thick, and shall be extended with brick or hollow tile not less than 2 inches thick to a height of 2 feet above the top of furnaces or kettles. In no case shall any range, candy furnace or kettle set in brick for built against a brick wall, or upon said wall, for a height of two feet above the top of such range, candy furnace or kettle.

All wood and lath and plaster, or wooden ceilings over all ranges in hotels, restaurants and boarding houses shall be guarded by metal hoods,

placed at least 9 inches below the ceiling, or shall be metal lined on walls and ceiling back of and above the range. All ventilating pipes connected with a hood over a range shall be at least 9 inches from any wood lath and plaster, or combustible material or such pipes shall be covered with 1 inch of asbestos on wire mesh, and shall not pass through any floor. Stoves shall be kept 20 inches and smoke pipes 12 inches from any wood, lath and plaster or woodwork and shall be protected with a metal shield arranged with at least 1-inch air space behind such shield.

All low, portable gas stoves, or heaters, shall be placed on iron stands or other incombustible bases, or the burners shall be at least six inches above the base of the stove and metal guard plates placed 4 inches below the burners; all woodwork under them shall be covered with metal or other incombustible material.

Notice as to Heating Apparatus.

Section 289. In cases where hot water, steam, hot air or other heating plants are to be hereafter placed in any building, or flues or fireplaces are to be changed or enlarged due notice shall first be given to the Board of Public Works by the person or persons placing the said plants in said building, or by the contractor or superintendent of said work.

Bay Windows.

Section 290. Bay, oriel or swell windows shall not be constructed within the fire limits, excepting at those corners of blocks whose enclosing sides form an angle of less than ninety degrees. All bay, oriel or swell windows in brick stone or concrete outside of fire limits, exceeding in height the measurement allowed for frame buildings, shall be either covered with or constructed of fireproof material.

Piers between bay, oriel or swell windows in brick, stone or concrete buildings shall not be less than four (4) feet in width, for buildings not more than three (3) stories in height; five (5) feet in width for buildings not more than five (5) stories in height, and six (6) feet in height for buildings not more than six (6) stories in height, and seven (7) feet in width for buildings not more than eight (8) stories in height.

The openings for bay, oriel or swell

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LATHS, POSTS, ETC.

Office

1515 Fillmore Street

Between Geary and O'Farrell Streets

Telephone West 3781

Yard

North Point and Taylor Sts.

Telephone Temporary 596

windows, in brick walls shall have steel beams of proper length to support the floors and loads; these beams must extend at least eight (8) inches into the walls at both sides of the openings.

Bay, oriel or swell windows may project not more than three (3) feet over the street line, measured to the finish; and not more than three (3) feet from the face of the building, they must not be more than ten (10) feet wide measured from end to end, and the finish of their soffits must be at least ten (10) feet above the sidewalk unless the window is entirely back of the street line.

Bay windows shall not be allowed to project over the streets when said streets are less than thirty-five (35) feet wide.

Skylights.

Section 291. All skylights on roofs projecting at an angle less than $22\frac{1}{2}$ degrees, not enclosed by a substantial railing at least three (3) feet high, shall be protected by screens of no 10 wire, with meshes not more than $1\frac{1}{2}$ inches square. The screens must be secured to the sash and must be kept at least 4 inches above the glass.

Wire rolled glass may be used, in which case the wire screens may be omitted.

Section 292. All skylights placed in brick buildings shall be of metal, and shall be glazed with glass $\frac{3}{4}$ inch in thickness.

All skylights in buildings of Classes "A," "B" and "C" shall have the sashes and frames thereof constructed of iron and glass and shall be self-supporting.

Cornices, Belts, Gutters and Other Appendages.

Section 293. All exterior cornices, belts, gutters and other appendages on Class "A," Class "B" and Class "C" buildings shall be constructed of metal, stone or terra cotta, as prescribed by Section 110 of this Ordinance.

All metal, stone or terra cotta cornices shall be riveted and well secured to iron brackets not more than 2 feet apart and properly built into the walls.

Appendages Within the Fire Limits.

Section 294. Appendages of Class "C" buildings, within the fire limits, such as dormer windows, mouldings, eaves, parapets, balconies, bay windows, towers, spires, ventilators, erec-

tions on roofs, turrets, lantern lights, if not wholly fireproof shall be enveloped with fireproof materials, in which case the sheathing underneath must be covered with an approved fireproof paint; provided, however that any of the said appendages which exceed the allowed limit of height of its class shall be wholly fireproof.

Fireproof Shutters and Doors.

Section 295. Excepting the openings of buildings fronting on streets more than thirty feet wide, or openings which are not above and within thirty (30) feet of the roof of another building, or which are not within thirty (30) feet of any opposite or diagonally exposed building, all exterior windows or openings of every brick, stone or concrete building more than two (2) stories high, or more than 25 feet above the curb level (excepting buildings of Classes "A" and "B"), used as stores, storehouses, mills or manufacturing, now or hereafter erected shall have tin-clad doors or shutters, or, in lieu thereof, wire glass, not less than one-quarter of an inch thick, hung within iron frames as herein provided, or self coiling, rolling corrugated steel shutters, running in grooves and fitted with suitable appliances on the outside thereof, for the convenience of firemen in raising provided they are not locked, except in the first story, by permission of the Board of Public Works.

Openings on the first story may be fitted with doors or shutters of iron.

Tin-clad doors or shutters shall be made as follows: Of two (2) thicknesses of matched redwood boards, crossed at right angles, aggregating $1\frac{3}{4}$ inches, nailed with clinched nails and covered first with $\frac{1}{8}$ -inch sheet asbestos; then with 10x14 inch tin plate with joints locked and hammered down over all nail heads, on both faces and edges; all hinges, hangers, latches and appurtenances to be bolted to the doors, blinds or shutters, and all track or stops to be bolted through or into the brick wall with expansion bolts, and all eyes and lugs shall be built into the walls.

All doors, blinds or shutters shall be hung upon iron eyes or frames, independent of any woodwork, and if they shall extend three inches over the masonry; and those above the first floor shall be so arranged that they can be readily opened and closed from the outside.

Those on the first floor shall have the locks so arranged as to admit of easy destruction by the Fire Department or Fire Patrol.

No building hereafter erected other than a dwelling house or fireproof building shall have inside iron or steel shutters or windows above the first story, except when they cannot be placed upon the exterior.

Lights and Vent Shafts.

Section 296. Light shafts are enclosed structures passing through the floor or floors of buildings for the purpose of admitting light and air, or an open space within the building entirely surrounded by walls.

The walls or partitions forming all light or vent shafts in wood frame buildings shall be built of wooden studs, lined on both sides with fireproof material.

The walls of all light or vent shafts hereafter erected shall be carried up at least 3 feet above the level of the roof. All openings in light shafts shall have metal or metal covered frames.

All walls and ceilings within ten feet of openings in floors, except those necessary to admit stairways, shall either be constructed of fireproof material or entirely covered with metal lath and plaster $\frac{3}{4}$ -inch thick. The facias around such openings must be covered with fireproof material, but doors, sashes and trim may be of wood.

Floor Lights.

Section 297. Floor lights used for transmission of light to floors below shall be constructed of metal frame and bars or plates, and if any glass therein measures more than 16 square inches the glass shall be provided with a mesh of wire, either in the glass or under the same, and the floor lights shall be of the same proportional strength as the floors in which they are placed.

Scuttles and Ladders.

Section 298. All buildings over 25 feet high shall have permanent means of access to the roof from the inside with ladders or stairs leading thereto and accessible to all occupants. The openings in the roof shall not be less than 24x36 inches, and when ladders are placed on the exterior of any building they shall be constructed of metal and bolted through the walls of said building at each story, with not less than $\frac{5}{8}$ -inch bolts, with the nuts and washers to show on the outside of the building. Said ladders shall

be placed not less than 6 inches from the walls of buildings, and shall extend at least two feet above firewall or roof of buildings, and shall be securely fastened at top.

Size of metal for ladders 2 inches x $\frac{3}{8}$ inches, 18 or more inches apart.

Size of rungs for ladders $\frac{3}{4}$ of an inch in diameter.

The braces carrying ladders shall be $1\frac{1}{2}$ inches x $\frac{1}{2}$ inch, bolted through the building.

Where the ladders join they shall be connected and bolted with not less than four bolts on each side.

Screws or lag screws shall not be used in the construction of said ladders.

In frame buildings, where the studding does not correspond with the measurements for ladders, extra headers shall be inserted between the studding, of the same thickness as the studding, and securely spiked.

Engineer's Stationary Ladders.

Section 299. Every building in which boilers are placed in the cellar or lowest story shall have stationary iron ladders or stairs from such story, leading directly to a manhole in the sidewalk, or to inside exits.

Temporary Staging on Roofs.

Section 300. No temporary staging of any kind, nor stand for observation purposes shall be constructed of wood upon the roof of any building.

Elevators, Hoists and Dumb Waiters.

Elevator Shafts and Hatchways.

Section 301. Open elevators or elevators without fireproof enclosures may be used in buildings of Classes "A" and "B"; they may also be used in buildings of Class "C," provided they are located and operated in well holes or fireproof staircases (oak treads may be used); provided the staircase is entirely surrounded by walls, either of fireproof material or of studding covered on both sides, with metal lath and plaster.

Open elevators may be used in all buildings, provided they do not pass the ceiling of the first story.

Elevators to Be Enclosed.

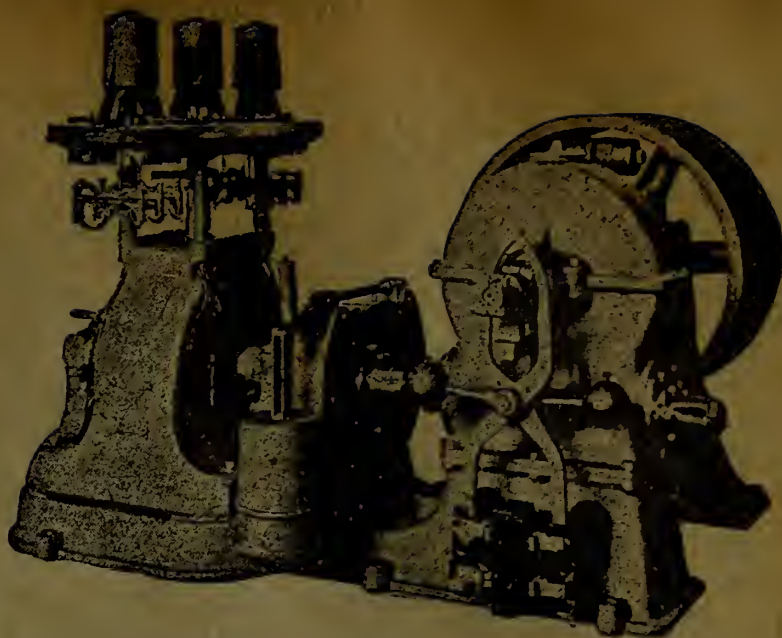
Section 302. Elevators, hoists, dumb waiters and lifts and all openings or shafts passing through the floor or floors in all buildings other than Classes "A" and "B," and under all other conditions, shall be enclosed by walls of non-combustible material, or of studding covered on both sides with iron, or with metal lath and

R. J. DAVIS,
President

B. C. VAN EMON
Vice-President
and Manager

H. B. RATHBONE,
Secretary
and Treasurer

PHONE MAIN 5679



15 H. P., S. W. TYPE

The Van Emon Elevator Co.

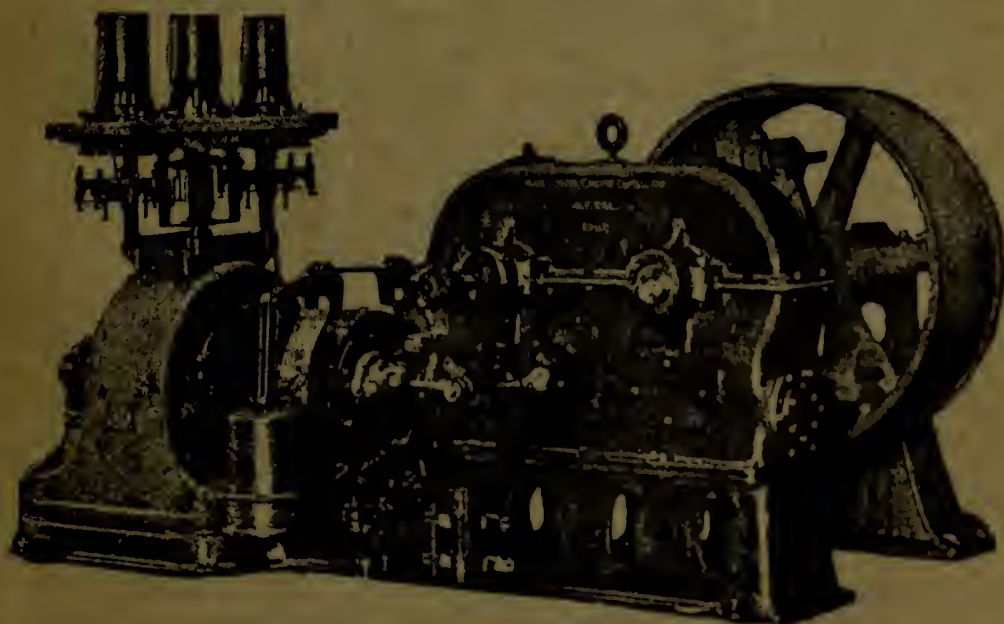
INCORPORATED

Manufacturers of

Electric, Hydraulic and Belt

ELEVATORS

46-54 NATOMA STREET, NEAR SECOND, SAN FRANCISCO, CAL.



20 H. P., D. W. TYPE

plastering not less than three-quarters of an inch in thickness.

Buildings occupied or used entirely for manufacturing or mercantile purposes may have a hanging enclosure around said openings, to extend downward at least three feet and covered with metal on both sides from soffit of the hanging enclosure to the top of the floor above, and trap doors covered with metal on the underside at each story.

Tops of Shafts.

Section 303. If the shafts of said elevators, hoists, dumb waiters and lifts pass the upper floor of any building they shall be carried through at least 18 inches above the lowest point of the roof adjacent and they must be covered with a skylight ;if they do not pass the upper floor their tops shall be covered with some non-combustible material.

Windows and Doors in Elevator Shafts.

Section 304. The inside faces of all doors opening into elevator shafts shall be covered with metal. The upper panel of any such door may be a grill. Windows shall not exceed one for each floor, nor shall any window have a greater area than 24 square feet, except where said openings are in exterior walls and face a street, when they may, by permission of the Board of Public Works, be made larger. The frames, sashes and all woodwork shall be covered with metal. Sashes shall be glazed with glass 3-16 inches in thickness.

Ropes and Gearing.

Section 305. The strength of the ropes, gearing and all other portions of the mechanism of passenger elevators shall be calculated with a factor of safety of twenty figured from actual static loads.

For all other elevators ten is to be used as the factor of safety; also figured from actual static loads.

The main suspension ropes or cables of all elevators used for passengers or freight must be non-combustible material.

Safety Appliances.

Section 306. Every elevator shall be provided with approved devices for preventing the car from falling in case of accident.

Openings in Shafts.

Section 307. All freight elevator shafts must be provided at each floor

through which they pass with the latest and best appliances, style and design of automatic opening and closing safety gates.

Doors opening into passenger elevator shafts shall be entirely under the control of the operator, and shall be so arranged that they can be opened from the inside.

This section shall apply to any and all buildings hereafter erected, altered or changed.

Wire Screens.

Section 308. Elevator cabs shall be so covered by wire screens as to protect passengers from falling machinery. Every part of the elevator pit enclosed in a shaft shall be protected by a metal grill.

Openings—Sidewalk Elevators.

Section 309. All openings hereafter constructed in sidewalks for sidewalk elevators shall be located in the outer half of the sidewalk next to the curb. The outer edges of said openings shall be not more than 30 inches from the outer line of the curb. The length of the sides of said openings parallel with the curb shall not exceed 7 feet. The length of the sides of said openings at right angles to the curb shall not exceed one-third the width of the sidewalk, and in no case shall such length exceed five feet.

Fire Escapes and Stand Pipes.

Fire Escapes.

Section 310. For the proper and necessary protection of life and property, all buildings hereinafter designated in this section and Ordinance, that are already erected and built, or that may be hereafter erected and built in this City and County shall be provided and equipped with fire escapes and stand pipes, as follows:

Every building that is occupied or so constructed as to be occupied by two or more families on the third story, not having proper or sufficient exits or facilities for escape in case of fire, and every building of four or more stories in height, and every building used or occupied or so constructed as to be used or occupied as a theater, hospital, tenement house, apartment house, lodging house, or for a factory, mill or manufactory or for offices, workshop, or public entertainments or assemblages, above the second story, and every school building of more than two (2) stories in height, shall be provided and equipped with metallic fire escapes combined with suitable metallic balconies, platforms and rail-

ings, firmly secured to the outer walls, and erected and arranged in such a way in in such proximity to one or more windows, or to as many windows, or to as many windows of each story above the first as may be necessary to make and render said fire escapes readily accessible, safe and adequate for the escape of the inmates in case of fire, and when placed on the rear or sides of building not adjoining a street they shall extend down to within 8 feet of the ground.

Said fire escapes shall extend from the level of the ceiling of the first story to and over the roof, and shall be either vertical metallic ladder fire escapes, metallic stair fire escapes, or other approved fire escapes. The Board of Public Works, after approval by the Fire Wardens, shall determine the kind, construction, location and number of fire escapes, necessary and adequate on all such buildings to make the means of escape therefrom easy and safe to the inmates in case of fire.

All fire escapes shall be erected and built as required by the provisions of Section 313 of this Ordinance, and shall at all times be kept in good order and repair, and free from any and all obstructions.

Standpipes.

Section 310A. Every building of four stories in height shall have inside or outside of the exterior walls one or more metallic standpipes at least 4 inches in diameter, which shall extend from four feet above the sidewalk to and over the roof and rest on the fire walls; and at each story there shall be branches with 3-inch gate valves; and there shall be a two-way Siamese inlet attached to each standpipe four feet above the line of the sidewalk; and a two-way outlet over the roof with two 3-inch gate valves, provided with cap and chain.

Every building of five stories in height shall have inside or outside of the exterior walls one or more metallic standpipes, at least four inches in diameter, which shall extend from four feet above the sidewalk to and over the roof and rest on the firewalls; and at each story there shall be branches with 3-inch gate valves; and there shall be a three-way Siamese inlet attached to each standpipe four feet above the line of the sidewalk; and a two-way outlet on the roof, with three-

inch gate valves, provided with cap and chain; all connections for inlets shall not be less than three inches in diameter.

Every building of six to and including fifteen stories in height shall have inside or outside of the exterior walls one or more metallic standpipes at least 5 inches in diameter, which shall have a four-way Siamese inlet attached thereto, four feet above the line of the sidewalk, and at each story there shall be a 3-inch gate valve, provided with cap and chain; there shall be an outlet at the end of each standpipe over the roof; it shall be connected with a 3-way Siamese, having 3-inch gate valves, provided with cap and chain. All connections for inlets shall be no less than three (3) inches in diameter.

Every building of sixteen stories or more in height shall have on the inside of the exterior wall one or more metallic standpipes, at least six (6) inches in diameter, which shall have a 6-way Siamese inlet attached thereto, four feet above the line of the sidewalk; and at each story there shall be a three-inch gate valve, provided with cap and chain. There shall be an outlet at the end of each standpipe over the roof, which shall be connected with a 4-way Siamese, having four 3-inch gate valves, provided with cap and chain. All connections for inlets and outlets shall not be less than three inches in diameter.

The Board of Public Works and Fire Wardens are hereby given the power to locate and inspect said standpipes and fire escapes, to see that the same are properly constructed and located as in this Ordinance prescribed. All iron or steel material used in the construction and erection of fire escapes and standpipes after being fitted to the building and before being placed in permanent position on the building shall be galvanized, so as to preserve the iron or steel from rust and decay, and shall be kept in good order and repair and free from any and all obstructions.

The provisions of this section shall not apply to the erection of fire escapes on buildings of Class "A" and "B" where there are two or more stairways. Buildings of Class "A" and "B" shall, however, be provided with suitable standpipes in the interior hallways of each story, with suitable inlets and outlets thereto, in accordance with the provisions of Section 113.

Passages to Exits Required in Certain Buildings.

Section 311. All buildings used or occupied or constructed to be used or occupied as hospitals, asylums, seminaries, hotels, apartment houses, tenement houses, lodging houses, or workshops shall have on each floor a passage free and unobstructed, leading direct to each fire escape.

The following are exempt from the above requirements.

All buildings of Class "A" and "B" construction.

Apartment houses where every apartment has direct access to a fire escape, which either faces on a street, or from which there is a direct passage to the street.

All buildings not exceeding in width thirty (30) feet outside measurement and not situated on a street corner.

The Board of Public Works shall determine the location of passages and exits thereto necessary and adequate on all such buildings hereinbefore specified, so as to make the means of escape therefrom easy and safe in case of fire or panic.

The maximum width of passages to exits shall be as follows:

To an exit on a building, frontage of from thirty (30) feet to forty (40) feet, two (2) feet and six (6) inches wide.

To an exit on all buildings over forty (40) feet frontage, three (3) feet wide.

Provided, however, that the width of passages to exits shall be increased to from three (3) feet to four (4) feet six (6) inches, at the discretion of the Board of Public Works, in case of hospitals, asylums, large hotels and other buildings where more than the usual number of people congregate or are housed.

All buildings, if containing more than four (4) apartments or suits on any one floor, shall be provided with at least two (2) staircases, which shall be placed as far apart as circumstances will allow, but in no case shall said staircases be placed within thirty (30) feet of one another.

Exits for Frame, Lodging, Apartment and Tenement Houses, Hotels, Hospitals and Asylums.

Section 312. Frame buildings used as lodging, apartment and tenement houses, hotels, hospitals or asylums shall have on each floor open halls at least three feet and six inches wide,

which shall lead to all fire escapes.

Such buildings, if containing more than four apartments or suites on any one floor, shall be provided with at least two (2) staircases.

Specifications for the Erection and Construction of Fire Escapes.

Section 313. Where a vertical metallic ladder is required, it shall be constructed according to the following requirements:

Size of metal for ladder, $2 \times \frac{3}{8}$ inches.

Size of rungs for ladder, $\frac{3}{4}$ inch diameter.

Size of grating bars for balconies, $1\frac{1}{2} \times 5-16$ inches.

Size of cross-bearing bars, carrying gratings, $1\frac{1}{2} \times \frac{3}{8}$ inches.

The outside frames of all fire escapes carrying the gratings shall be 2-inch angle iron, shall extend all around the platform, and they must be bolted through the building.

The size of the bearing metal carrying platforms shall not be less than 2-inch channel iron, and the braces carrying the same shall be $1\frac{1}{2} \times 1\frac{1}{2}$ inches, and must be bolted through the building.

The top rail of the balconies eight feet or less in length shall be $1\frac{1}{2} \times \frac{3}{8}$ inches;; balconies over eight (8) feet in length shall have in center one (1) extra rail of the same size as the top rail.

The trimmings for finishing outside rails shall be $\frac{3}{4} \times \frac{1}{4}$ inches.

The height of railings of balconies shall not be less than two feet six inches, and the width of balconies not less than three feet.

All rails and bearing beams shall extend through the wall, or studding, and have washers and nuts on the same.

Where the vertical ladders join they shall be connected and bolted with not less than four bolts on each side.

Screws or lag screws shall not be used in the construction of fire escapes.

All balconies shall be constructed with circular corners.

All nuts shall show on the outside of building.

Openings in balconies shall not be less than two (2) feet square.

Brackets carrying platforms shall not be more than five (5) feet apart.

Perpendicular ladders shall be at least eight (8) inches from the building.

Finishing on balconies shall not extend outside the rail.

Gratings on platforms shall be placed on edge, and the grating bars of all platforms shall not be more than one (1) inch apart, and in all cases shall be made of iron or steel.

All brackets carrying balconies shall be bolted through the entire walls or studding; the bolts shall not be less than seven-eighths of an inch, and they shall have nuts and washers.

In frame buildings where the studding does not correspond with the measurements for balconies and ladders extra headers shall be inserted between the studding and shall be of the same thickness of the studding, and securely spiked.

Where metallic stair fire escapes are required they shall be constructed according to the following requirements:

Balconies shall be placed upon buildings as the Board of Public Works may direct.

Where the brackets support the stairs or stair fire escapes the brackets shall be constructed of three-inch channel iron.

The platforms of balconies shall be the same as required for vertical ladders, and shall be placed on the line of the top of the flooring of each story. Said platforms shall be supported upon iron brackets, not more than five (5) feet apart, and shall in all cases be built into and anchored to the walls of masonry, during the construction of the walls, and shall go through the entire thickness of said walls, and must be securely fastened on the inside of the building.

The width of all balconies from the face of the wall out shall not be less than three (3) feet six inches, and the length of all balconies shall be regulated by the Board of Public Works.

In the floor or platform of all balconies, there shall be an opening, not less than two feet wide, and three feet six inches long, enclosed and protected on three sides.

The railings and balconies shall be constructed as required for ladders. There shall be a communication from balcony to balcony by means of inclined stairs, and no ladder will be allowed below the line of the flooring of the uppermost story of any building.

Said stairs shall have an inclination from the perpendicular of not less than four inches to every twelve inches of rise, and shall be made of side

stringers of not less than $4 \times \frac{1}{4}$ inch steel; treads must be turned down on ends, and riveted well into each stringer, at a distance apart of 16 inches for said inclination. All such stairs must be provided with substantial railings, of $1\frac{1}{4}$ -inch pipe; the sides shall be well supported by suitable standards of $1\frac{1}{4}$ -inch pipe, at proper distances, viz: four standards to each run of steps and thoroughly bolted to the stringers.

The ladders extending from the upper balconies to the roof may be perpendicular, but must be well braced with iron brackets.

Awnings, Shades and Balconies.

Section 314. All awnings, shades and balconies shall be at least ten (10) feet above the line of the curb level, and securely supported on wrought iron brackets, built into the walls, and no part shall be less than ten (10) feet above the line of the curb level of the sidewalk, and a gutter shall thereon be formed to carry off the water to the line of the building and thence to the street gutter. No gutter shall be required on cloth or canvas awnings or shades. The height of all movable canvas or cloth awnings or shades shall not be less than $7\frac{1}{2}$ feet above said curb level.

Awnings, shades and balconies shall not extend beyond the line of the curb, provided, however, that no awning, shade or balcony shall be erected on any building facing on any street, lane, alley or place which is twenty (20) feet or less in width; and no awning, shade or balcony shall be constructed on any building within the fire limits, unless the same be constructed of fireproof material, and all cloth or canvas awnings shall be kept raised, except when the sun shines on the spot to be protected by the same.

SIDEWALK WORK.

Vaults Under Sidewalks.

Section 315—Sub. 1. Where the space under the sidewalks is excavated for a vault, a sufficient concrete, stone or brick wall and brick, concrete or reinforced concrete arches between iron and steel beams shall be built to retain the roadway of the street, and the side, end or party wall of such building of sufficient thickness shall extend under the sidewalk to such wall.

The height of area, retaining or em-

METROPOLITAN IRON WORKS

9TH AND BRANNAN STREETS

bankment walls shall be computed from the top of the ground which they are built to retain, and shall not be less than 17½ inches thick for the first four (4) feet below such ground and increased four (4) inches in thickness for every four (4) feet in depth below such 17½-inch wall.

Embankment or retaining walls, which do not have sidewalks or buildings to support them, must be of such thickness as good engineering practice requires.

No wooden bulkhead shall be erected, constructed or used as an embankment or retaining wall, exceeding five (5) feet in height, except where it is necessary in retaining the soil in making excavation for the purpose of construction.

All works supporting the sidewalk shall rest upon and be of incombustible material. Openings in sidewalks for the admission of coal or light, or for manholes, or for any other purposes, if placed outside the property line, shall be covered with lens lights, set in iron or cement frames, or with iron covers having a rough surface and rabbeted flush with the sidewalk.

No plain surface of glass or iron more than four inches in diameter shall be placed in any sidewalk. When a cover is placed in any sidewalk, it shall be placed as near as practicable to the line of the curb, except for steps and areaways. All spaces under sidewalks shall be thoroughly ventilated.

Sub-Sidewalks Used at Pleasure of City and County.

Sub. 2. All such places shall be built and occupied, subject to the conditions following:

The Board of Supervisors of the City and County reserve the right to suspend or annul the privilege of maintaining such cellar or vault, or to exact a license or rental for the use thereof, or to apply such sub-sidewalk space, or any portion thereof, to municipal uses.

Deposit Exacted For Restoration of Pavement.

Sub. 3. The permittee shall deposit with the Board of Public Works the sum of twenty (20) dollars for each and every 25 feet of the frontage or fraction thereof, of the premises in front of which the excavation for such cellar or vault is to be made, as a guarantee for the proper restoration of any portion of the roadway fronting the same which may be disturbed or

injured by reason of excavating and constructing such cellar or vault. Said deposit shall be refunded to the permittee upon the endorsement on the permit issued therefor, of a certificate of the Bureau of Streets, certifying to the satisfactory condition of such roadway.

Permittee Construct Temporary Sidewalk.

Sub. 4. The permittee shall construct a temporary sidewalk under the direction and to the satisfaction of the Board of Public Works for public use, and maintain the same during the time of the excavation and construction of such cellar or vault; and he shall strictly comply in all respects with the provisions of Ordinances relating to cellars or vaults under public sidewalks.

Areas.

Section 316. All areas set back from the street line shall be properly protected with suitable railings, or covered over; those on the sidewalk shall have iron doors, which shall be so made that when opened they will form guards.

When areas are covered over, iron or iron and glass combined, stone or other incombustible materials supported on brick, concrete or stone walls, or on iron or steel beams, shall be used. Areas on sidewalks shall not exceed three (3) feet in width, measured from the street line.

Area Walls for the Protection of Hydrants.

Section 317. The owner or owners, agent or agents, or the person or persons having control of any building, shall build or cause to be built when requested so to do by the Board of Public Works, a substantial brick wall for the protection of the hydrant bend; said wall shall be not less than eight (8) inches in thickness, and must be built from the bottom of the basement to the sidewalk; said wall must be built in any portion of the basement that the Board of Public Works may direct, and it must be plastered on both sides with good cement plaster, so as to be perfectly water-tight should the hydrant bend burst.

Protection of Pedestrians.

Section 318. Whenever buildings shall be erected or increased to over 65 feet in height upon or along any street, the owner, builder or contractor constructing or repairing such building, shall have erected and maintained during such construction or re-

pair a shed which shall extend over the sidewalks from building line to the curb, which shed must be properly, strongly and tightly constructed so as to protect pedestrians and others using such streets. Whenever outside scaffolds are required to carry on the construction of buildings over eighty-five feet in height, whether the same be constructed by poles or thrust-out scaffold, there shall be erected on its outer edge and ends an enclosure of wire netting of not over one inch mesh, or of boards not less than three-fourths of an inch thick, placed not over one inch apart, well secured to uprights not less than two inches by four inches, fastened to planks or timbers, and resting on put-logs or thrust-outs. The said enclosure shall be carried up at least five feet above the level on which the workmen employed on said front are working. The said thrust-out shall be not less than three by ten, of spruce or pine, and shall be doubled or tripled, as may be required for the load to be carried, and they must be thoroughly braced and secured; or said timbers may be in one stick, if proportioned to the load. The floorings on thrust-outs and put-logs shall be tightly constructed with plank. If the walls of such buildings are carried up two stories or more above the roofs of adjoining buildings, proper means shall be provided and used for the protection of skylights and roofs of such adjoining buildings.

The protection over skylights shall be of stout wire netting, not over three-fourths inch mesh, properly secured on stout timbers. All such sheds and enclosures shall be subject to the inspection of the Board of Public Works. Should said adjoining owners, tenants or lessee refuse to grant permission to have said roofs and skylight so protected, such refusal shall relieve the owner of the building in course of construction of any responsibility for damage done to the persons or property on or within the premises affected.

Temporary Floors.

Section 319. Any building more than three stories high in course of construction shall have the joists, beams or girders of each and every floor below the floor or level where any work is being done, or about to be done, covered with scaffold boards laid close together, or with other suit-

able materials, to protect the workmen from falling between joists or girders, and from falling bricks, rivets, tools or other substances whereby life and limb are endangered.

Stables.

Section 320. Permits for public livery and boarding stables, or for stables to accommodate more than six (6) horses, will be granted upon presentation of the written consent of the owners of property within two hundred (200) feet of the stable. Buildings for stabling animals above the first or ground floor, unless fireproof, shall not be erected or altered.

Obstructions on Stairs.

Section 321. Stairs or stairways, passing from one floor to another in any building shall not be covered with a permanent flooring, but may be closed with a board partition extending from the floor to the ceiling, and provided with a door, which must be kept free from all obstruction at all times, so as to give to the Fire Department and Fire Patrol easy access from one floor to another, provided this section shall not apply to buildings used for public assemblages.

Goods or obstructions of any kind shall not be placed on the stairs of any building.

Explosive or inflammable compounds, or combustible materials, shall not be stored or placed under any stairway of any building, or used in any such place or manner as to obstruct or render egress hazardous in case of fire.

Sidewalk Elevators.

Section 322. The shafts or sidewalk openings of all sidewalk elevators must be covered with substantial iron doors. Such doors must be provided with some mechanical device for locking and unlocking them which will not require any person to ride on the elevator for the purpose of locking or unlocking said doors. The doors of all sidewalk elevators must be opened by hand from the outside.

It shall be unlawful for any person, firm or corporation to open or cause to be opened any door or doors of any sidewalk elevator otherwise than by hand from the outside.

It shall be unlawful for any person, firm or corporation to maintain, operate or cause to be maintained, operated or used any sidewalk elevator

unless the shaft or sidewalk opening thereof is covered with substantial iron doors, with some mechanical device for locking or unlocking them, which device will not require any person to ride on the elevator for the purpose of locking or unlocking the said doors.

ELECTRICAL WIRES, APPLIANCES AND CONSTRUCTION IN BUILDINGS.

Electrical Construction Conform to "National Electrical Code."

Section 323. All electrical construction, all material and all appliances used in connection with electrical work, and the operation of all electrical apparatus in buildings in the City and County of San Francisco shall be in conformity with the rules and regulations set forth in what is known as the "National Electrical Code," being rules and requirements for the installation of electrical wiring and apparatus for electric light, heat and power, as the same are now established, and the said rules and regulations, together with any amendments and changes made therein from time to time are hereby adopted and approved.

Certificate of Inspection.

Section 324. Upon completion of the wiring of any building it shall be the duty of the corporation, co-partnership or individual doing the same to notify the Chief of Department of Electricity, who shall at once inspect the same, and if approved by him shall issue a certificate of satisfactory inspection, which shall contain the date of such inspection and an outline of the result of such examination; nor shall current be turned on on such installation until said certificate be issued; nor shall any change, alteration or extension be made in the wiring of any building after inspection without notifying the said Chief and securing a permit therefor.

Certificate of Registration.

Section 325. Every corporation, co-partnership or individual engaged in conducting the business of placing, installing or operating electrical wires, appliances, apparatus or construction, in or on buildings in the City and County of San Francisco, shall appear in person or by duly authorized representative at the office of the Department of Electricity and shall there register his name and place of business in said City and County, which act, upon being sworn, shall entitle

him to a certificate of registration, provided, however, that no certificate of registration shall be granted for a period of more than one fiscal year, or the unexpired portion thereof.

Section 326. It shall be unlawful for any corporation, co-partnership or individual to engage in conducting the business of placing, installing or operating electrical wires, appliances, apparatus or construction in or on buildings in the City and County of San Francisco without first obtaining a certificate of registration from the Department of Electricity, and said certificate must be renewed as provided for in Section 325 of this Ordinance, within thirty (30) days after the first day of July of each fiscal year.

Department of Electricity Approve Plans and Specifications.

Section 327. The placing, installing or operating of electrical wires, appliances, apparatus or construction in or upon buildings in the City and County of San Francisco shall be executed in accordance with plans and specifications previously approved in writing by the Chief of the Department of Electricity of said City and County; provided, however, that a copy of said plans and specifications as approved shall be placed on file in the office of the Department of Electricity.

Contractor's Bond.

Section 328. Every corporation, co-partnership or individual engaged in conducting the business of placing, installing or operating electrical wires, appliances, apparatus or construction in or on buildings in the City and County of San Francisco before registration shall give a bond to the State of California in the sum of one thousand dollars, with good and sufficient security, for the faithful compliance with the provisions of this Ordinance, and said bond shall be approved by and filed with the Chief of the Department of Electricity.

Revocation of Certificate of Registration.

Section 329. The failure, neglect or refusal on the part of any corporation, co-partnership or individual, after due notification by the Department of Electricity, to correct, obviate or remove any fault, error or deficiency in placing, installing or operating electrical wires, appliances, apparatus or construction in or on buildings in said City and County shall be deemed sufficient cause for the Chief of the De-

partment of Electricity to revoke temporarily said certificate of registration, and he is hereby authorized to suspend said certificate of registration for a period not exceeding thirty (30) days.

Inspector to Have Right of Entry to Premises.

Section 330. Any corporation, co-partnership, association or individual, or agent thereof, owning, operating or in possession of any electric power or electric light and power plant; or any corporation, co-partnership, association or individual, or agent thereof, owning or in possession of any building or other structure with the City and County of San Francisco, shall permit an Inspector of the Department of Electricity to enter and inspect such plant or premises once in every three (3) months, or oftener if deemed necessary by the Chief of the Department of Electricity, for the purpose of ascertaining whether the electrical wires, appliances, apparatus, construction or equipment in or about said plant, building or other structure are in conformity with the provisions of this Ordinance, and it shall be unlawful for any occupant or owner of premises where electrical wires, appliances, apparatus, construction or equipment are used or to be used, or any person whatever, to prevent or interfere with any inspector in the discharge of his duties, under this Ordinance; provided, however, that said inspector shall, upon the request of the owner or occupant of said premises, exhibit his authority to make such inspection, which shall be signed by the Chief of the Department of Electricity; and any such corporation, co-partnership, association or individual or agent thereof, after notice in writing has been given by the Chief of the Department of Electricity that any portion of said electrical wires, appliances, apparatus, construction or equipment does not conform with the provisions of the National Electrical Code, as provided for in this Ordinance, shall make such repairs and alterations as may be necessary to make said electrical wires, appliances, apparatus, construction or equipment conform to said Code; and failing so to do within five (5) days after said notice is given, the Chief of the Department of Electricity, or his authorized representative, shall and he is hereby em-

powered to disconnect and remove said portion of said electrical wires, appliances, apparatus, construction or equipment so found to be not in conformity with said Code; and the Chief of the Department of Electricity shall forthwith notify the corporation, co-partnership, or association, or individual, or agent thereof, supplying the electrical power for said connection; and said corporation, co-partnership, association or individual, or agent thereof, shall not renew said power supply without permission from the Chief of the Department of Electricity.

Inspection Fees.

Section 331. Every corporation, co-partnership, association or individual, or agent thereof, placing or installing electrical wires, appliances, apparatus, construction or equipment in, on or about any building, or other structure, in the City and County of San Francisco, shall before a certificate of inspection, as provided for in Section 324 of this Ordinance, is issued by the Department of Electricity for the said City and County, pay to the Department of Electricity for such inspection the following fees, viz:

For each outlet at which current is controlled or issued for four lights or under	\$ 05
For each outlet at which current is controlled or used for over four lights	10
For one arc lamp.....	50
For each additional arc lamp...	25
For each motor of 1 horse power or less	50
For each motor of more than one horse power and not more than 3 horse power	1 00
For each motor of more than 3 horse power and not more than 8 horse power	1 50
For each motor of more than 8 horse power and not more than 15 horse power	2 00
For each motor of more than 15 horse power	2 50
For each generator of 1 kilo watt or less	50
For each generator of more than 1 kilo watt and not more than 3 kilo watt	1 00
For each generator of more than 3 kilo watt and not more than 8 kilo watt	1 50
For each generator of more than 8 kilo watt and not more than 15 kilo watt	2 00

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(50) cents.

Fees for Extra Inspection.

Section 332. When any corporation, copartnership, association or individual, or agent thereof, after notice has been given in writing by the Chief of the Department of Electricity, shall be found to have intentionally or negligently violated any of the rules or regulations established under this Ordinance; or when, through any such violation, by corporation, co-partnership, association or individual, or agent thereof, doing the work, it is necessary to make extra inspections of the work, there shall be charged said corporation, co-partnership, association or individual, or agent thereof, for such extra inspection made necessary on account of such violation a fee of not to exceed seventy-five (75) cents per hour for the time actually consumed by each inspector making such inspection; provided, however, that this provision shall not apply to new work previous to the issuance of the certificate of inspection, as aforesaid; and for the inspection of electrical wires, appliances, apparatus, construction or equipment, for which no fee is herein prescribed, and for the inspection of temporary installations for decorative, advertising, theatrical, or similar purposes, there shall be charged to and paid by the corporation, copartnership, association, or individual, or agent thereof, installing such work a fee not exceeding seventy-five (75) cents per hour for the time actually consumed by each inspector making such inspection, previous to obtaining the necessary certificate of inspection as aforesaid.

Fees to Be Deposited in Treasury.

Section 333. It shall be the duty of the Chief of the Department of Electricity to turn all moneys received under this Ordinance into the treasury of the City and County of San Francisco.

Non-Liability of City and County for Damages.

Section 334. This ordinance shall not be construed to relieve from or lessen the responsibility of any person owning, operating or installing

any electrical wires, appliances, apparatus, construction or equipment for damages to any one injured by any defect therein; nor shall the City and County, or any agent thereof, be held as assuming any such liability by reason of the inspection authorized herein, or the certificate of inspection issued by the Department of Electricity.

PART XIII.

REGULATIONS FOR THE TEMPORARY OCCUPANCY OF A PUBLIC STREET, BY MATERIALS OR APPLIANCES FOR ANY PURPOSE.

Permit Must Be Obtained From Board of Public Works.

Section 335. No person, firm, company or corporation shall place or cause to be placed upon a public street, or any portion thereof, in the City and County of San Francisco, any materials or appliances for use in the construction, alteration or repair of a building of any kind, or for any other purpose necessitating temporary occupancy of any portion of the public streets, without first obtaining a permit therefor from the Board of Public Works of said City and County.

Space To Be Occupied.

Such materials or appliances shall not occupy more than one-third of the width of the roadway of the street, and not more than one-half of the width of the sidewalk, and shall be placed thereon under the direction and to the satisfaction of said Board of Public Works, but in no case shall they be placed or caused to be placed within 6 feet of the center of a railroad track.

Deposit Must Be Made for Permit.

Section 336. The permit aforementioned and required shall be granted only to the owner or lessee or the duly authorized agent of the owner or lessee of the lot upon which a building or in front of which a sidewalk is proposed to be constructed, altered or repaired, upon the depositing by such owner, lessee or agent with said Board of Public Works the sum of twenty (20) dollars for each and every fifty (50) feet of the frontage, or fraction thereof, of such building or such sidewalk, as a guaranty to the said City and County that the permittee will remove, or cause to be removed, all dirt, debris, and materials of any

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kind from the street, to the satisfaction of said Board of Public Works, immediately upon the completion of the construction, alteration or repair of such building or such sidewalk, or at such times prior thereto, when in the judgment of said Board the public interests or convenience will be subserved by the removal of the same, or any portion thereof. And every permit granted as in this Ordinance provided, shall be subject to such guaranty. In all other cases, before a permit is granted, a sum not exceeding twenty (20) dollars must be deposited with said Board of Public Works as a guaranty for the purpose aforesaid.

Period of Permit.

The said Board of Public Works shall prescribe in the permit granted the time for such occupancy of a street. Upon the failure or neglect of the permittee to remove or cause to be removed to the satisfaction of said Board of Public Works such dirt, debris or materials as aforesaid within three days after being notified so to do by said Board, the money so deposited as a guaranty, or so much thereof as may be necessary, shall be used by said Board in the removal of such dirt debris, or materials.

Materials To Be Confined.

Section 337. All the materials intended for use in the purposes aforesaid, shall be confined to and occupy only such portion of the street as the permit may designate, and all sand, dirt, and other materials or debris of any kind shall be prevented from being blown or otherwise moved to any other portion of the street, or from interfering in any way whatever with the carrying on of any business, or enjoyment of any property.

No material of any kind shall be deposited in any gutterway of any street, so as in any manner to obstruct the same.

Board of Public Works Prescribe Rules and Regulations.

Section 338. The said Board of Public Works may make such rules and regulations, not otherwise provided for by Ordinance, as it may deem essential for the protection and convenience of persons or property passing on a street, or any portion thereof, during such temporary occupancy thereof, and a willful disregard of any regulation or rule so made shall

be deemed a violation of this Ordinance.

Temporary Sidewalks and Fences in Front of Buildings in Course of Construction.

Sidewalks and Fences.

Section 339. It shall be unlawful for any person, firm or corporation, to erect or cause to be erected, or to continue the erection of any building within the fire limits, or to cover the same with mastic or other coating of mortar, without first laying or causing to be laid, on the outer half of the width of the sidewalk and next to the curb, a temporary or permanent sidewalk, for the use of pedestrians, and without first erecting, or causing to be erected, a good and substantial fence, at least twelve (12) feet high, inclosing the inner half of the width of the sidewalk, so as to protect pedestrians from brick, timber, mortar or debris falling from such building. Such sidewalks must be so constructed and all building operations must be so conducted that pedestrians shall have a free and unobstructed passage over at least the outer one-half of the official width of the sidewalk next the curb.

Permit for Excavation.

Section 340. No excavation shall be made in any sidewalk with the fire limits, unless a permit in writing shall have been first obtained from the Board of Public Works, which permit shall not in any case be for a longer period than fifteen (15) days, and shall provide for a strict compliance with all the conditions of this Ordinance.

The Construction of Scaffolds.

Permit for Scaffold.

Section 341. It shall be unlawful for any person, firm or corporation, to erect, build or maintain, or cause to be erected, built or maintained, over or upon any building, any scaffolding without first obtaining the written permission of the Board of Public Works, which permit shall state fully for what purpose said scaffolding is to be erected and used, and such scaffolding shall not be used for any purpose other than that designated in such permit.

Safety of Scaffold.

Section 342. It shall be unlawful for any person, firm or corporation,

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to erect, maintain, suspend, swing or use, or cause to be erected, maintained, suspended, swung or used, any scaffold or staging, unless the same be of sufficient strength to support the weight placed thereon, and of sufficient width to prevent any person working thereon or any materials placed thereon, from falling.

Section 343. It shall be unlawful for any person, firm or corporation, to swing or suspend, or cause to be swung or suspended, from any overhead support or supports, any staging or scaffolding, more than twenty (20) feet above the ground or floor, unless the same shall have, when in use, a safety rail, rising at least thirty-four inches above the level, and extending along the outer edge and across the ends of such staging or scaffolding, and unless the same shall be provided with braces sufficient to sustain the weight of a man's body, and to prevent it from swaying from the building or structure from it is suspended.

Prohibiting Preparation of Mortar or Concrete, in a Moist State, Upon the Surface of the Roadway of Any Public Street Paved With Bituminous Rock or With Asphalt, or Upon Any Improved Sidewalk.

Section 344. No person shall place or cause to be placed anywhere upon the surface of the roadway of any public street, in this City and County, paved with either bituminous rock, or with asphalt, or upon the surface of any improved sidewalk therein, either mortar or concrete in a moist state, for any purpose whatsoever, or mix or prepare the same upon such roadway or sidewalk, unless such mortar or concrete be placed, mixed or prepared in a tight box or upon a close fitted platform or bed, constructed and maintained to the satisfaction of the Board of Public Works.

NUMBERING OF BUILDINGS.

When Completed To Be Numbered.

Section 345. Every person, firm or corporation owning any building, or the agent thereof, must, within two weeks after the completion or occupation of such building, place, or cause to be placed, on or over the door or gate used as an entrance to such building, or adjacent to such door or gate, so as to be readily seen from the street, the appropriate number of such building, as herein specified.

Entrances to Be Numbered.

Section 346. All entrances from

streets to buildings, or to separate apartments in buildings, shall be numbered, and it shall be unlawful for any person, whether owner or occupant of the building, or any apartment therein, to place, maintain, or allow to remain thereon, any number other than the one required by this Ordinance. The number placed upon any entrance shall be of a different color from the background upon which it is placed, and each figure of such number shall be at least one and three-quarters inches in height and of proportionate width.

All numbers must be made of substantial and permanent material and must be so placed or affixed as not to be easily effaced or removed.

Method of Numbering.

Section 347. Market street shall be the starting point for the numbers of all buildings fronting on the streets beginning thereat and running therefrom in any direction. On Webster, Fillmore, Steiner, Pierce, Scott, Devisadero, Broderick, Baker and Lyon streets and Central avenue, and streets in the Sunnyside, Lakeview, Railroad, Homestead and City Land Association tracts, the numbering shall begin at their southerly ends and proceed toward the north. On all streets having a northerly and southerly course, or diverging less than forty-five (45) degrees from a northerly and southerly course, and not otherwise provided for, the numbering shall begin at their northerly ends and proceed toward the south. On all streets except as hereinafter provided having an easterly and westerly course, or diverging less than forty-five (45) degrees from an easterly and westerly course, the numbering shall begin at their easterly ends and proceed toward the west. Provided that on streets lying south of Army street and running from Mission street in an easterly or southerly direction, and also on Bernal avenue, Montezuma and Aztec streets, Esmeralda avenue and on streets in Gift Maps 1 and 2, the numbering shall start at their westerly ends and proceed toward the east. On all intermediate or subdivision streets the numbering shall commence where the streets begin and proceed in the same direction as the numbering on the principal streets between which they lie.

Section 348. On all streets the numbers on the right hand side, starting from the point of beginning, shall

be even numbers, and the numbers on the left hand side shall be odd numbers; provided, that on all streets lying west of Central avenue and Presidio avenue, but not including the former, and having a northerly and southerly course, the numbers on the right hand side, starting from the point of beginning, shall be odd numbers, and the numbers on the left hand side shall be even numbers.

Section 349. One hundred members, or as many thereof as may be necessary, shall be allotted to the property frontage in each block between two main streets, the number 100 being the first number on the right side, and the number 101 being the first number on the left hand side of the second block of all streets, except those lying west of Central avenue and Presidio avenue, but not including the former. The succeeding hundreds shall be allotted in similar manner consecutively to each succeeding block; provided, however, that on Market, Mission, Natoma, Howard, Folsom, Harrison, Bryant, Jackson, Pacific, Broadway, Vallejo, Green, Union, Francisco, Bay and Webster streets and Central avenue, one hundred numbers shall be allotted to the first two blocks between Waller and Page streets; provided, further, that when the length of a block exceeds 850 feet, two hundred numbers shall be allotted thereto.

When any street fails in its course to traverse certain blocks, one hundred numbers shall be allotted to each block not traversed, in the same manner as if the street were continuous. When any street except Market street is intersected on its opposite sides by different streets, the hundreds on one side shall be made to correspond as closely as possible to the hundreds on the opposite side, by allotting only twenty-five numbers, even or odd as the case may require, to the side on which the blocks are shorter.

One number shall be allowed for each one-fiftieth of the frontage of each block, between two main streets, except in blocks having a frontage of less than four hundred feet, where the allowance shall be made on the basis of one number to every eight feet of frontage.

Renumbering.

Section 350. Nothing in this ordinance shall authorize the Board of Public Works to renumber any block which is now uniformly numbered in accordance with any previous ordinance, unless such renumbering is made necessary by the construction or alteration of buildings whereby the number of entrances to buildings on

such block has been so increased as to prevent consecutive numbering without confusion.

Notice To Be Given.

Section 351. It is hereby made the duty of the Board of Public Works, whenever it has knowledge of any violation of this Ordinance, to give notice thereof to the owner, or, if he cannot be found, to the occupant of the premises where the violation occurs; and if, after two weeks, the cause of complaint is not removed, to have the penalty provided in this Ordinance enforced.

Temporary Retention of Old Number.

Section 352. Whenever any property owner has been notified to change the numbers of his building, the old numbers may be temporarily retained, in addition to the new numbers; provided, however, that in no case shall such old numbers be retained for a period longer than sixty (60) days after the official notice to change the same.

MISCELLANEOUS PROVISIONS.

Removal of Paint From Buildings.

Section 353. It shall be unlawful for any person, association, or corporation, to undertake the removal of paint from any wooden building or other structure, by the process of burning, without first having given the Chief Engineer of the Fire Department at least three (3) days' written notice of the intention to perform said work, and without having secured permission from said engineer, as a precaution against fires and conflagrations which might arise from the careless performance of said work.

Board of Public Works To Stop Construction of Certain Buildings.

Section 354. The Board of Public Works shall have the power to stop the construction of any building or the making of any alteration or repairs to any building when the same is done in a reckless or careless manner, or in violation of any of the provisions of this Ordinance, and to order in writing or verbally any and all persons in any way or manner whatever engaged in so constructing, altering or repairing any such building, to stop and desist therefrom, and the person or persons so ordered shall immediately comply therewith.

Unsafe Structures.

Section 355. Whenever, in the judgment of the Board of Public Works, any building, or any portion thereof, or any appurtenances there-

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INDEX TO ADVERTISERS

SPECIAL COLORED PAGES

Art Metal Construction Co.....	Opposite Page	33
Bass-Heuter Paint Co.....	" "	34
Bergren, L. G.	" "	109
Blyth & Trott.....	" "	4
Brinkmeyer & Reid	" "	4
Builders' Supply Depot	" "	23
California Art Glass B. & C. Works.....	" "	4
California Plate and Window Glass Co.....	" "	22
Chivers, H. C.	Backbone	
Chubbuck & Harris	Opposite Title Page	
City and County Bank	" Page	23
Clinton Fire-Proofing Co. of Cal.....	" Title Page	
Coles, Chas P.....	" "	37
Couchot & O'Shaughnessy	" "	89
Cronan's Eagle Cornice Works	" "	89
Dean Reversible Window Co.....	" "	5
Dunlevy & Gettle	" "	23
Eby Machinery Co.....	" "	5
Edlin, J.	Colored Page	4
Enterprise Foundry	Back Fly Leaf	
Eureka Boiler Works	Opposite Page	4
Flieshhacker, A. & Co.....	" "	109
Gage, Mills & Co.....	" "	108
Gale, M. F. & Son	" "	82
German Savings and Loan Society.....	Back Inside Fly Leaf	
Gilbrett, Frank B.	Opposite Page	35
Gilbrett, Frank B.	" "	35
Gimpel, M. C.	Back Inside Fly Leaf	
Girvin & Eyre	Colored Page	2
Golden State and Miners' Iron Works.....	Opposite Page	11
Haas, Carl F.	" "	89
Hendy, J. Machine Works	Front Fly Leaf	
Holland Sandstone Brick Co.....	Opposite Page	17
Holmes, E. H. & Co.....	" "	110
Holmes Lime Co.	" "	21
Horan, J. B.	" "	8
Iron and Steel Construction Co.....	" "	109
Irvine, Wirth & Jachens.....	" "	109
Joshua Hendy Machine Works	Front Fly Leaf	
Lally Co.....	Opposite Page	23
Lilley & Thurston	" "	23
Little & Christiansen	" "	36
Lowney, D. D.	Next to Title Page	
Maldonado & Co.....	Back Cover	
Marshall-Newell Supply Co.....	Opposite Page	102
Maxwell, Harry J.....	" "	9
McGilvray-Raymond Granite Co.....	" "	6
McGilvray Stone Co	" "	6
McLellan, E. W. & Co.....	" "	110
Meyer, Wilson & Co.....	" "	6
Mohr Comfort Window Screen	Inside Front Cover	
Monterey Lime Co.....	Opposite Page	34
Moore, R. B. Co.....	" "	37
Morrison Lumber Co.	" "	110
Nielsen, Reed & Small.....	Back Fly Leaf	
Norris, L. A.	Opposite Title Page	
O'Kane, Chas.	" Page	10*
Oliver Typewriter	Inside Back Cover	
Orsi, G.	Back Fly Leaf	
Pacific Blower and Heating Co.....	Back Cover Margin	
Pacific Foundry Co.....	Opposite Page	7
Pacific Rolling Mill Co.....	" "	7
Pacific States Tel. & Tel. Co.....	Back Fly Leaf	
Pacific Wrecking and Construction Co.....	Colored Page	3
Pioneer Roofing Co.....	Opposite Page	4
Ransome Construction Co.....	" "	36
Rehnstrom, C. H.	Back Fly Leaf	
Roebbling Construction Co.....	Opposite Page	37
Roos Bros.	Back Fly Leaf	
Royal Heating Co.....	Opposite Page	8
San Francisco Coke and Gas Co.....	Next to Title Page	
Schulze, Henry A.	Opposite Page	8
Scofield Co., The	Front Outside Cover	
Sheehan, John R. & Co.....	Inside Front Cover	
Smith-Rice Co.	Back Fly Leaf	
Steiger & Kerr Stove and Foundry Co.....	Opposite Page	108
Sweet-Davenport Lumber Co.....	Colored Page	2
Uhl Bros.	Outside Front Cover	
Underwriters' Engineering and Construction Co.....	Opposite Page	35
Van Arsdale-Harris Lumber Co.	Front Cover Margin	
Watson Construction Co.	Opposite Page	10
Western Builders' Supply Co.	" "	4
White, H. S. Machinery Co.	" "	89
Windsor's Cal. Pottery and Terra Cotta Works	" "	33
Worthington, Henry R.	" "	20

to, or any structure, or any chimney, smokestack, stove, oven, furnace or thing connected with any building or upon any premises or place, is dangerous, defective or unsafe, the said Board shall notify the owner thereof, and shall order and cause the same to be torn down, altered, repaired or rebuilt, or such work to be done thereon as the said Board may deem necessary to render the same safe.

Inspectors' Right to Enter Buildings.

Section 356. The Architect and Inspectors of the Board of Public Works, so far as may be necessary for the performance of their duties, shall have the right to enter any new or unoccupied building, or any building under construction, repair, alteration, or removal, or any building alleged to be unsafe, or a menace to life and limb, upon showing their badge of office.

Section 357. Order No. 267 (second series) and Ordinances Nos. 119, 272, 282, 303, 353, 485, 645, 718, 787, 802, 889, 911, 936, 1097, 1198, and 1548, and all Ordinances and parts of Ordinances in so far as they conflict with this Ordinance are hereby repealed.

Penalty.

Section 358. Any person, firm, company, or corporation that violates, disobeys, omits, neglects or refuses to comply with, or that resists or opposes the execution of any of the provisions of this Ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding five hundred (500) dollars, or by imprisonment for not more than six (6) months, or by both such fine and imprisonment; and every such person, firm, company or corporation shall be deemed guilty of a separate offense for every day such violation, disobedience, omission, neglect or refusal shall continue, and shall be subject to the penalty imposed by this section for each and every separate offense; and any builder or contractor who shall construct any building in violation of any of the provisions of this Ordinance, and any architect having charge of such building, who shall permit it to be so constructed, shall be liable to the penalties provided and imposed by this section.

Section 359. This Ordinance shall take effect and be in force immediately.

Index to Advertisers.

Acme Lumber Co.....	14	Castelhun, Ella	46
Albion Lumber Co.....	24	Clark, N. & Sons	12, 60
American Steel & Wire Co.....	1	Clawson, L. E. & Co.	76
American Wire Fence Co.....	44	Collins, W. E.	44
Archer & Corwin.....	108	Colusa Sandstone Co.	70
Armitage & Rowell.....	36	Cotton Bros. Co.	106
Baker & Hamilton.....	6	Cowell, H., Lime & Cement Co. ..	22
Bakewell & Brown.....	42	Crim & Scott	40
Barber Asphalt Paving Co.....	44	Cunningham & Politeo	36
Barker & Walsh.....	34	Dalziel, R., Jr.	92
Barrett, Chas. H.....	40	David Mfg. Co.	30
Barth, H.....	40	Deily & Burmeister	18
Bennett Bros.	30	Doak Sheet Steel Co.	68
Berry Bros.	72	Dolliver, J. W.	34
Bliss & Faville	34	Dow, Geo. E. Pumping Eng. Co.....	78
Booker, James	36	Empire Hardware Co.	42
Bowring & Co.	106	Empire State Surety Co. Inside bk cover	
Briete, W. W.	36	Everett Oliver	38
Brittain & Co.	8	Excelsior Lumber Co.	104
Burrell Construction Co.	108	Farnsworth Elec. Works	16
Butte Eng. & Elec. Co.	32	Forderer Cornice Works	72
Cahill, P. J. S.	36	Fraser, Emory M.	34
Cantin, Alex A.	36	Fuller, Geo. A. Co.	104
Carnegie Brick & Pottery Co.....	10	Fuller, W. P. & Co.	54
Carssow, F. H.	44	Galassi Mosaic Co...Inside back cover	
Cassareth, John	64	Geilfuss, H. & Son	46

Gladding, McBean & Co.....	74	Putnam & Cox	38
Globe Engraving Co.	46	Ralston Iron Works	42
Globe Sheet Metal Works	46	Rand & Skinner	38
Guenther, Emil	40	Raymond Granite Co.	70
Hansen, M. & Co.	20	Reading Hardware Co.	114
Harbor Lumber Co.	54	Ross, T. Patterson	34
Harmon, S. H. Lumber Co.	56	Rousseau, Chas. J.	46
Harron, Rickard & McCone	50	Rushforth, Geo.	36
Haskins, A. R.	80	Ryland, C. T.	44
Havens & Toepke	36	Salfield & Kohlberg	34
Hay, M.	46	Sanborn & Corinson	38
Healy, Tibbits Construction Co. ..	58	Santa Cruz Lime Co.	30
Hedger, H. H.	42	Sawyer, H.	40
Hercules Mfg. Co.	72	Scott & Magner	32
Howard, E. A.	24	S. F. Gas & Elec. Co.	16
Hyde, E. W.	42	Schindler, Henry B.	26
Johns, H. W.; Manville Co.	22	Selby Smelting & Lead Co.	68
Keystone Boiler Works	64	Seymour & Elliott	66
Keuffel & Esser	92	Shea & Shea	42
Kollofrath, E.	38	Smith, Emery & Co..Inside front cover	
Lindgren-Hicks Co.	62	Snell, E. L.	42
Loss, C. E. Co.	76	Southern Pacific Co.	113
Lynch, M. C. & P. J.	18	Standard Portland Cement.....	
Lyon, M. J.	38Outside back cover	
Magnesia Asbestos Supply Co.	48	Stauffer Chemical Co.	28
McDougall Bros.	36	Steiger Terra Cotta & Pottery Wks. 2	
McNear, G. W.	56	Thomson Bridge Co.	26
McWhirter Electric Co.	46	Union Iron Works	6
Metropolitan Iron Wks...Bottom lines		Union Oil Co.	70
Meusdorffer, C. A.	34	Van Arsdale, Harris Lumber Co....	24
Meyer & O'Brien	34	Van Emon Elevator Co.	95
Meyers & Ward	38	Vermont Marble Co.	78
Miller, J. R.	40	Voorhees, F. D.	44
Miller, W. A. & Co.	14	Vulcan Iron Works	74
Milwain, A. M.	38	Walker, R. H.	44
Mitchell, W. G.	40	Watson, W. J. Roofing Co.	28
Moore & Scott	62	Wellington, Geo. J	5, 74
Mooser, Wm.	38	Western Building Material Co.....	
Nason, R. N. & Co.	32Outside back cover	
Newsom, J. C.	40	Western Roofing Material Co.	30
Pac. Coast Glass Works	32	White, R. H.	44
Pac. Coast Lumber & M. Co.	16	Wieland, C. F.	38
Pac. Fire Extinguisher Co.	66	Wilson, Wm. F. & Co.	42
Pacific Mail SS. Co.	52	Witt, Geo. E. Co.	66
Pac. Portl'd Cement Co...Front cover		Wood, F. B.	46
Paraffine Paint Co.	60	Wood, E. K. Lumber Co.	20
Phoenix Lumber Co.	92	Woods-Huddart	58
Pitcher, E. C. & Co.	108	Wright, G. A.	36
Porter-Gribble Electric Co.Front cover			

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